

حمل الآن

مجاناً وحصرياً

المراجعة رقم (1)

اختبار شهر اكتوبر



Important questions on unit one



First Multiple choice questions

- 1 The irrational number between 2 and 3 is
(a) $2.\bar{5}$ (b) $\sqrt[3]{10}$ (c) $\sqrt[3]{6.25}$ (d) $\sqrt[3]{9}$
-
- 2 $\sqrt[3]{-27} + 3 = \dots\dots\dots$
(a) zero (b) 3 (c) 6 (d) -24
-
- 3 The solution set of the equation: $x^3 = 8$ in $\mathbb{Q}$ is
(a) $\{-2\}$ (b) $\{2\}$ (c) $\{-2, 2\}$ (d) $\emptyset$
-
- 4 If $x < \sqrt{29} < x + 1$, $x \in \mathbb{Z}$, then $x = \dots\dots\dots$
(a) 4 (b) 5 (c) 6 (d) 7
-
- 5 The number $\sqrt{10}$ lies between two consecutive integers these integers are
(a) 2 and 3 (b) 3 and 4 (c) 4 and 5 (d) 5 and 6
-
- 6 $\mathbb{Q} \cup \mathbb{Q} = \dots\dots\dots$
(a) $\emptyset$ (b) $\mathbb{Z}$ (c) $\mathbb{R}$ (d) $\mathbb{N}$
-
- 7 $\sqrt{-9} \dots\dots\dots \mathbb{R}$
(a) $\in$ (b) $\notin$ (c) $\subset$ (d) $\not\subset$
-
- 8 What is the estimate value of the number $\sqrt{41}$ to the nearest integer ?
(a) 6 (b) 7 (c) 36 (d) 49
-
- 9 $\sqrt[3]{25} \dots\dots\dots \sqrt{9}$
(a) $<$ (b) $>$ (c) $=$ (d) $\geq$
-
- 10 $\sqrt{15} \in \dots\dots\dots$
(a) $\mathbb{N}$ (b) $\mathbb{Z}$ (c) $\mathbb{Q}$ (d) $\mathbb{Q}$

11 $\mathbb{R} = \dots\dots\dots$

- (a) $]0, \infty[$ (b) $] - \infty, \infty[$ (c) $] - \infty, 0[$ (d) $] - \infty, 0]$
-

12 $-3 \dots\dots\dots] - 4, 1]$

- (a) $\in$ (b) $\notin$ (c) $\subset$ (d) $\not\subset$
-

13 $\mathbb{N} \dots\dots\dots]0, \infty[$

- (a) $\in$ (b) $\notin$ (c) $\subset$ (d) $\not\subset$
-

14 $[4, 9] \cap [7, 10] = \dots\dots\dots$

- (a) $[4, 10]$ (b) $[9, 10]$ (c) $[4, 7]$ (d) $[7, 9]$
-

15 If $a \in]2, 5[$, then a could be equal to $\dots\dots\dots$

- (a) 1 (b) 2 (c) 4 (d) 5
-

16 $[-3, 5] \cup]2, 7[= \dots\dots\dots$

- (a) $[2, 5]$ (b) $[-3, 7[$ (c) $[-3, 2[$ (d) $[5, 7[$
-

17 If $X =] - \infty, 3[$, then $\bar{X} = \dots\dots\dots$

- (a) $]3, \infty[$ (b) $[0, 3[$ (c) $[3, \infty[$ (d) $] - \infty, 0[$
-

18 $]0, 5[-]3, 7[= \dots\dots\dots$

- (a) $]0, 3]$ (b) $]5, 7[$ (c) $]3, 5[$ (d) $]0, 3[$
-

19 $] - 1, 1[\cap \{1, 0, -1\} = \dots\dots\dots$

- (a) $\{1\}$ (b) $\{-1, 1\}$ (c) $[-1, 1]$ (d) $\{0\}$
-

20 $[2, 5] - \{2, 5\} = \dots\dots\dots$

- (a) $\{2, 5\}$ (b) $[2, 5[$ (c) $]2, 5[$ (d) $\emptyset$
-

21 $\mathbb{R} \cap [2, 5[= \dots\dots\dots$

- (a) $\mathbb{R}$ (b) $]2, 5]$ (c) $]2, 5[$ (d) $]2, 5[$
-

22 $\frac{6}{\sqrt{3}} = \dots\dots\dots$

(a) $\frac{2}{\sqrt{3}}$

(b) $2\sqrt{3}$

(c) $\frac{2\sqrt{3}}{3}$

(d) $\frac{\sqrt{3}}{2}$

23 $3\sqrt{5} - 4\sqrt{5} = \dots\dots\dots$

(a) $-\sqrt{5}$

(b) $-7\sqrt{5}$

(c) $\sqrt{5}$

(d) $7\sqrt{5}$

24 $-5\sqrt{2} \times 3\sqrt{2} = \dots\dots\dots$

(a) -15

(b) 15

(c) 30

(d) -30

25 If $x = -4\sqrt{3}$, $y = \sqrt[3]{3}$, then $xy^3 = \dots\dots\dots$

(a) -12

(b) $-12\sqrt{3}$

(c) 12

(d) $12\sqrt{3}$

26 $2(3 + \sqrt{2}) = \dots\dots\dots$

(a) $6 + \sqrt{2}$

(b) 8

(c) $6 + 2\sqrt{2}$

(d) $2 + \sqrt{6}$

27 $(2\sqrt{5} - 5)^2 = \dots\dots\dots$

(a) $20 - 45\sqrt{5}$

(b) $45 + 20\sqrt{5}$

(c) $20 + 45\sqrt{5}$

(d) $45 - 20\sqrt{5}$

28 $(2\sqrt{2} + 1)(2\sqrt{2} - 1) = \dots\dots\dots$

(a) $8 + 2\sqrt{2}$

(b) 7

(c) $7 + \sqrt{2}$

(d) 8

29 The additive inverse of the number : $3\sqrt{7} - 4$ is $\dots\dots\dots$

(a) $-3\sqrt{7} - 4$

(b) $4 - 3\sqrt{7}$

(c) $3\sqrt{7} + 4$

(d) $-4 + 3\sqrt{7}$

30 $\frac{3}{\sqrt{5} + \sqrt{2}} = \dots\dots\dots$

(a) $\sqrt{5} - \sqrt{2}$

(b) $3\sqrt{5} + 3\sqrt{2}$

(c) $\frac{1}{3}(\sqrt{5} - \sqrt{2})$

(d) $\sqrt{2} - \sqrt{5}$

31 The multiplicative inverse of the number : $-4\sqrt{2}$ is $\dots\dots\dots$

(a) $4\sqrt{2}$

(b) $\frac{\sqrt{2}}{8}$

(c) $-\frac{\sqrt{2}}{8}$

(d) $\frac{8}{\sqrt{2}}$

32 What is the multiplicative inverse of the number $\sqrt{3} - 2$?

(a) $2 - \sqrt{3}$

(b) $\sqrt{3} + 2$

(c) $-\sqrt{3} - 2$

(d) $\sqrt{3} - 2$

33 The simplest form of the number $\sqrt{48}$ is

(a) $3\sqrt{3}$

(b) $4\sqrt{3}$

(c) $2\sqrt{6}$

(d) $6\sqrt{2}$

34 $4\sqrt{\frac{1}{2}} = \dots\dots\dots$

(a) $2\sqrt{2}$

(b) $\frac{1}{2}\sqrt{2}$

(c) 2

(d) $\sqrt{2}$

35 $3\sqrt[3]{24} = \dots\dots\dots$

(a) $6\sqrt{6}$

(b) $6\sqrt[3]{4}$

(c) $6\sqrt[3]{3}$

(d) $6\sqrt[3]{3}$

36 $\sqrt{2} \times \sqrt{8} = \dots\dots\dots$

(a) $4\sqrt{2}$

(b) 4

(c) $\sqrt{10}$

(d) $4\sqrt{3}$

37 $2\sqrt{3} + 5\sqrt{27} = \dots\dots\dots$

(a) $7\sqrt{30}$

(b) $7\sqrt{3}$

(c) $10\sqrt{3}$

(d) $17\sqrt{3}$

38 $5\sqrt[3]{\frac{1}{5}} = \dots\dots\dots$

(a) $\sqrt[3]{5}$

(b) 5

(c) $\sqrt[3]{25}$

(d) $\sqrt{5}$

39 If $\frac{\sqrt{3}}{\sqrt{a}} = \frac{\sqrt{2}}{\sqrt{6}}$, then a =

(a) $\sqrt{3}$

(b) $\sqrt{6}$

(c) 3

(d) 9

40 $\frac{\sqrt{72}}{\sqrt{2}} = \dots\dots\dots$

(a) $2\sqrt{6}$

(b) $6\sqrt{2}$

(c) 6

(d) $\sqrt{70}$

41 The next number in the pattern : $\sqrt{3}, \sqrt{12}, \sqrt{27}, \sqrt{48}, \dots$ is

(a) $\sqrt{72}$

(b) $\sqrt{75}$

(c) $\sqrt{54}$

(d) $\sqrt{64}$

42 The multiplicative inverse of the number $\sqrt{32}$ is

(a) $\frac{8}{\sqrt{2}}$

(b) $\frac{\sqrt{2}}{8}$

(c) $4\sqrt{2}$

(d) $\frac{\sqrt{2}}{4}$

43 Half of the number 2^{10} is

(a) 2^5

(b) 2^{10}

(c) 2^9

(d) 2^{11}

- 44 $\left(\frac{3}{5}\right)^{-1} = \dots\dots\dots$
 (a) $\frac{3}{5}$ (b) $\frac{5}{3}$ (c) $-\frac{5}{3}$ (d) $-\frac{3}{5}$
-
- 45 $(-\sqrt{3})^4 = \dots\dots\dots$
 (a) 3 (b) -3 (c) 9 (d) -9
-
- 46 $-(\sqrt{2})^5 = \dots\dots\dots$
 (a) $(\sqrt{2})^5$ (b) $-2\sqrt{2}$ (c) $4\sqrt{2}$ (d) $-4\sqrt{2}$
-
- 47 $\left(\frac{6}{\sqrt{3}}\right)^2 = \dots\dots\dots$
 (a) $6\sqrt{3}$ (b) 12 (c) $12\sqrt{2}$ (d) $6\sqrt{2}$
-
- 48 $2^8 + 2^8 + 2^8 + 2^8 = \dots\dots\dots$
 (a) 2^{24} (b) 2^{10} (c) 4^8 (d) 8^{24}
-
- 49 If $3^x = 5$, then $3^{x+2} = \dots\dots\dots$
 (a) 15 (b) 25 (c) 45 (d) 81
-
- 50 If $3^{x+3} = 1$, then $x = \dots\dots\dots$
 (a) -3 (b) 3 (c) 0 (d) 1
-
- 51 What is the perimeter of the square whose area is $a \text{ cm}^2$?
 (a) $a^4 \text{ cm}$ (b) $(\sqrt{a})^4 \text{ cm}$ (c) $4\sqrt{a} \text{ cm}$ (d) $a^4 \text{ cm}$
-
- 52 $(\sqrt{3})^3 \times (\sqrt{3})^{-4} = \dots\dots\dots$
 (a) $\sqrt{3}$ (b) $\frac{\sqrt{3}}{3}$ (c) 3 (d) $\frac{1}{3}$
-
- 53 If $(\sqrt{6})^x \times \sqrt{6} = 1$, what is the value of x ?
 (a) 0 (b) 1 (c) -1 (d) -2
-
- 54 If $(x-3)^0 = 1$, then $x \in \dots\dots\dots$
 (a) $\mathbb{R} - \{3\}$ (b) $\mathbb{R}$ (c) $\{3\}$ (d) $\mathbb{R} - \{-3\}$

Second Essay questions

- 1** Find two consecutive integers between which each of the following numbers lies and identify its approximate location on the number line :

① $\sqrt{11}$

② $\sqrt[3]{20}$

- 2** Arrange the numbers : $6.\overline{36}$, $6\frac{4}{5}$, 7 , $\sqrt{40}$ from the smallest to the largest.

- 3** Find in $\mathbb{R}$ the solution set of each of the following equations :

① $x^3 - 11 = 5$

② $3x^2 - 1 = -13$

③ $4x^3 - 1 = 3$

- 4** Find in $\mathbb{Q}$ the solution set of each of the following equations :

① $5x^3 - 6 = 4$

② $2x^2 - 3 = 9$

③ $(x-1)^2 = 4$

- 5** A square with a side length of 8 cm, find the length of its diagonal.

- 6** Write in interval notation and represent on the number line each of the following :

① $\{x : x \in \mathbb{R}, x \geq 2\}$

② $\{x : x \in \mathbb{R}, -1 \leq x < 3\}$

③ $\{x : x \in \mathbb{R}, x < 1\}$

④ The set of positive real numbers.

- 7** If $X = [-3, 2[$, $Y =]-1, 5]$, find using the number line :

① $X \cap Y$

② $X \cup Y$

③ $X - Y$

- 8** If $A =]-5, \infty[$, $B =]-\infty, 2]$, find using the number line :

$A \cup B$, $A \cap B$, $A - B$, $B - A$, $\hat{A}$, $\hat{B}$

- 9** Find in the simplest form each of the following :

① $2\sqrt{5} + 3\sqrt[3]{2} + 4\sqrt{5} + \sqrt[3]{2}$ | ② $\sqrt{7} \left(\frac{2}{\sqrt{7}} - \sqrt{7} + 3 \right)$

③ $(\sqrt{5} - 1)(2\sqrt{5} + 3)$ | ④ $(2\sqrt{5} - 3)^2$

- 10** If $x = -4\sqrt{3}$, $y = \sqrt{3}$, $z = \sqrt[3]{5}$, find the value of each of :

① $x + y$

② xy

③ $2x - yz^3$

- 11** If $x = \frac{1}{\sqrt{3}+2}$, $y = \sqrt{3} + 2$, find in the simplest form the value of : $(x + y)^2$

12 A square with a side length of $5\sqrt{2}$ cm , find its area.

13 The dimensions of a rectangle are $(3\sqrt{3} + 4)$ cm and $(3\sqrt{3} - 4)$ cm , find its perimeter and area.

14 Simplify each of the following to the simplest form :

$$\begin{array}{l|l} \textcircled{1} \sqrt{75} - 2\sqrt{27} + 3\sqrt{\frac{1}{3}} & \textcircled{2} \sqrt[3]{81} + \sqrt[3]{24} - 3\sqrt[3]{\frac{1}{9}} \\ \textcircled{3} \sqrt{12} + \sqrt[3]{54} - 2\sqrt{3} - \sqrt[3]{16} & \textcircled{4} \sqrt[3]{24} + \sqrt[3]{15} \times \sqrt[3]{25} \\ \textcircled{5} \frac{\sqrt{72} \times \sqrt{75}}{3\sqrt{6}} & \end{array}$$

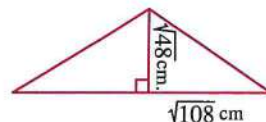
15 If $x = \sqrt{7} + \sqrt{5}$, $y = \sqrt{7} - \sqrt{5}$, find in the simplest form :

$$\textcircled{1} x^2 - y^2 \qquad \textcircled{2} \frac{x+y}{xy-1}$$

16 If $x = \sqrt{6} + \sqrt{2}$, $y = \frac{4}{x}$, find in the simplest form : $(x+y)^2$

17 If $a = \sqrt[3]{5} + \sqrt[3]{3}$, $b = \sqrt[3]{5} - \sqrt[3]{3}$, find the value of : $\left(\frac{a+b}{a-b}\right)^3$

18 Find the area of the given figure :



19 Simplify to the simplest form each of the following :

$$\textcircled{1} \frac{(\sqrt{3})^3 \times (\sqrt{3})^4}{(\sqrt{3})^5} \qquad \textcircled{2} \frac{(\sqrt{5})^{-3} \times (\sqrt{2})^{-4}}{(\sqrt{5})^{-1} \times (\sqrt{2})^{-5}} \qquad \textcircled{3} \frac{16x^4y^{-2} \times 7x^4y^5}{28x^2y^{-3}}$$

20 If $x = \frac{\sqrt{3}}{2}$, $y = \frac{1}{\sqrt{3}}$, $z = \frac{\sqrt{2}}{2}$, find the value of : $x^2 + (xz)^2 \times y^2$

21 If $3^x = 4$, find the value of each of :

$$\textcircled{1} 3^{x+1} \qquad \textcircled{2} 3^{x-1} \qquad \textcircled{3} 3^{x+2} + 3^{x+3}$$

October tests



Test

1

1 Choose the correct answer from those given :

1 Which of the following numbers is an irrational number that lies between 2 and 3 ?

(a) $2.\bar{5}$

(b) $\sqrt{10}$

(c) $\sqrt{6.25}$

(d) $\sqrt[3]{9}$

2 If $a \notin]-1, 3]$, which of the following could be equal to a ?

(a) -1

(b) 0

(c) 2

(d) 3

3 The multiplicative inverse of the number $\sqrt{3} - 2$ is

(a) $2 - \sqrt{3}$

(b) $\sqrt{3} + 2$

(c) $-\sqrt{3} - 2$

(d) $\sqrt{3} - 2$

4 If $X + \sqrt{28} = \sqrt{7}$, what is the value of X ?

(a) $\sqrt{21}$

(b) $-\sqrt{21}$

(c) $\sqrt{7}$

(d) $-\sqrt{7}$

5 If $(\sqrt{6})^x \times (\sqrt{6}) = 1$, what is the value of x ?

(a) 0

(b) 1

(c) -1

(d) -2

6 If $X^2 + aX + 15 = (X + 3)(X + b)$, what is the value of ab ?

(a) 5

(b) 8

(c) 13

(d) 40

2 Factorize each of the following completely :

1 $x^2 - 7x + 12$

2 $-7k - 49m$

3 If $x = \frac{1}{\sqrt{3} + 2}$, $y = \sqrt{3} + 2$, find in the simplest form the value of : $(x + y)^2$

1 Choose the correct answer from those given :

1 Which of the following represents the factorization of the polynomial $x^2 + x - 20$?

- (a) $(x - 4)(x + 5)$ (b) $(x + 4)(x + 5)$ (c) $(x - 4)(x - 5)$ (d) $(x + 4)(x - 5)$

2 $6a - 8b = \dots\dots\dots$

- (a) $6(a - 2b)$ (b) $4(2a - 4b)$ (c) $2(3a - 4b)$ (d) $14(a - b)$

3 $\left(\frac{7}{\sqrt{7}}\right)^0 - \frac{7}{(\sqrt{7})^0} = \dots\dots\dots$

- (a) 0 (b) 6 (c) 1 (d) -6

4 $\sqrt{18} + \sqrt{32} = \dots\dots\dots$

- (a) $\sqrt{50}$ (b) $7\sqrt{2}$ (c) $7\sqrt{4}$ (d) $5\sqrt{4}$

5 If $a + \sqrt{5} = 0$, what is the value of a ?

- (a) 0 (b) $\sqrt{5}$ (c) $-\sqrt{5}$ (d) $\frac{1}{\sqrt{5}}$

6 $\{2\} \cup]2, 5[= \dots\dots\dots$

- (a) $]2, 5[$ (b) $[2, 5]$ (c) $]2, 5]$ (d) $[2, 5[$

2 If $A = [-1, 3]$ and $B =]-\infty, 3[$, find each of the following:

1 $A \cap B$

2 $\bar{B}$

3 Factorize each of the following completely :

1 $x^2 y^3 + x^2 y^2 + x^3 y^2$

2 $3a^2 - 6a - 9$

1 Choose the correct answer from those given :

- 1 If $x \in \mathbb{Z}$, $x < \sqrt{29} < x + 1$, what is the value of x ?
 (a) 4 (b) 5 (c) 6 (d) 7
- 2 If $\sqrt[3]{5} + 3a = 4\sqrt[3]{5}$, then
 (a) $a = 1$ (b) $a = \sqrt{5}$ (c) $a = \sqrt[3]{5}$ (d) $a = 5$
- 3 Which of the following intervals does the number $-\sqrt{7}$ belong to ?
 (a) $[-2, -1]$ (b) $[-3, -2]$ (c) $[-4, -3]$ (d) $[-7, -6]$
- 4 If $2^x = 3$, what is the value of 2^{x+1} ?
 (a) 4 (b) 5 (c) 6 (d) 9
- 5 If $(x - 3)(x + 5) = 0$, which of the following is true ?
 (a) $x = 3$ or $x = 5$ (b) $x = 3$ or $x = -5$
 (c) $x = -3$ or $x = 5$ (d) $x = -3$ or $x = -5$
- 6 If $a - b = 7$, $x + y = 10$, then $x(a - b) - y(b - a) = \dots\dots\dots$
 (a) 3 (b) 17 (c) 51 (d) 70

2 Find the solution set of each of the following equations in $\mathbb{R}$:

- 1 $x^2 = 5x$
- 2 $(x - 5)(3x + 2) = 0$
- 3 $m^2 - 14m + 45 = 0$

3 Find the result of each of the following in the simplest form :

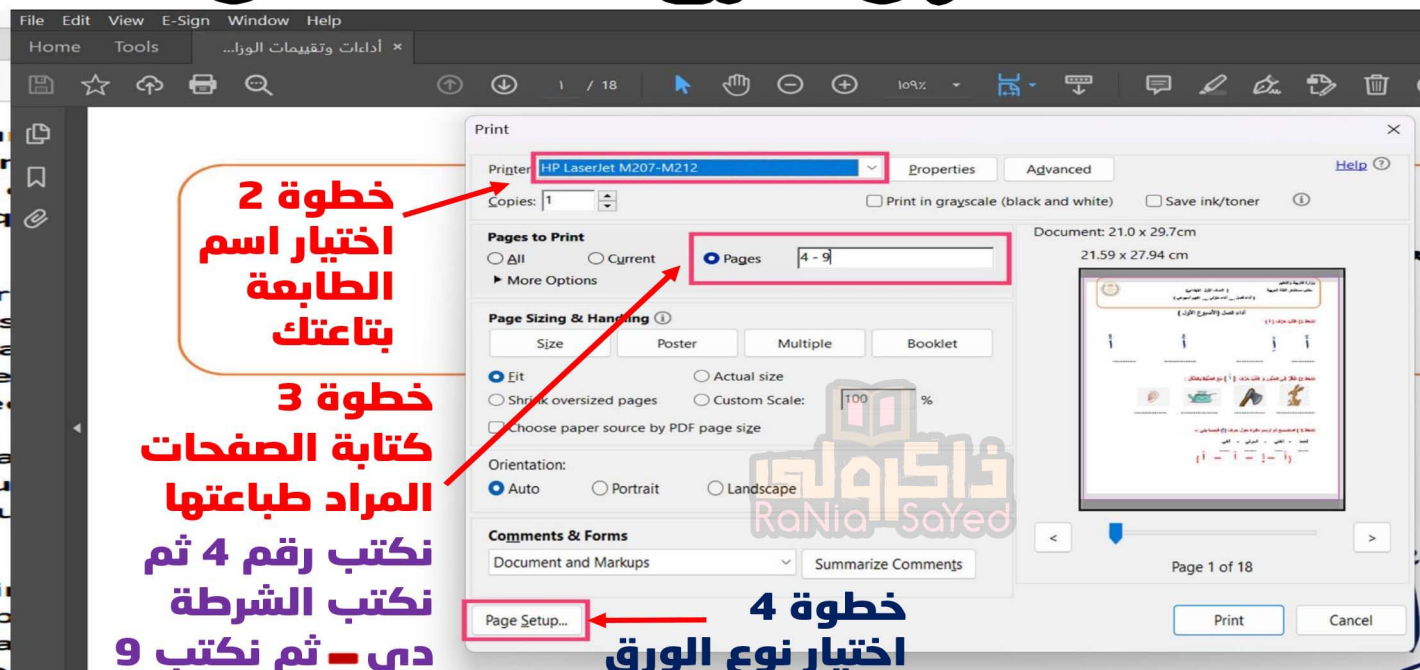
- 1 $(\sqrt{7} - 1)^2 + (\sqrt{7} + 2)(\sqrt{7} - 3)$
- 2 $2\sqrt{5} - 3\sqrt[3]{2} + 4\sqrt{5} + \sqrt[3]{2}$

كيفية طباعة صفحات معينة من ملف معين

مثلا ازاي نطبع الصفحات من صفحة 4 الى صفحة 9



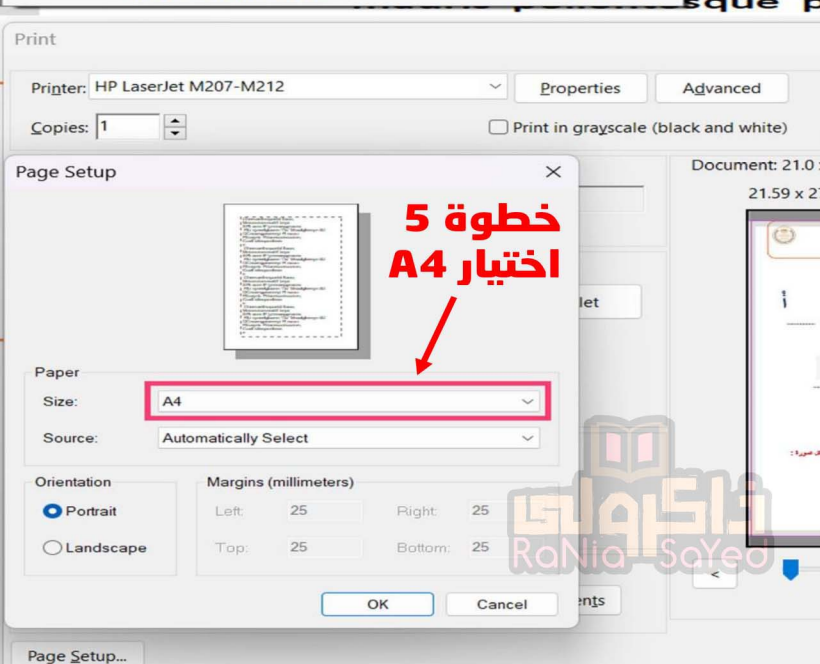
خطوة 1



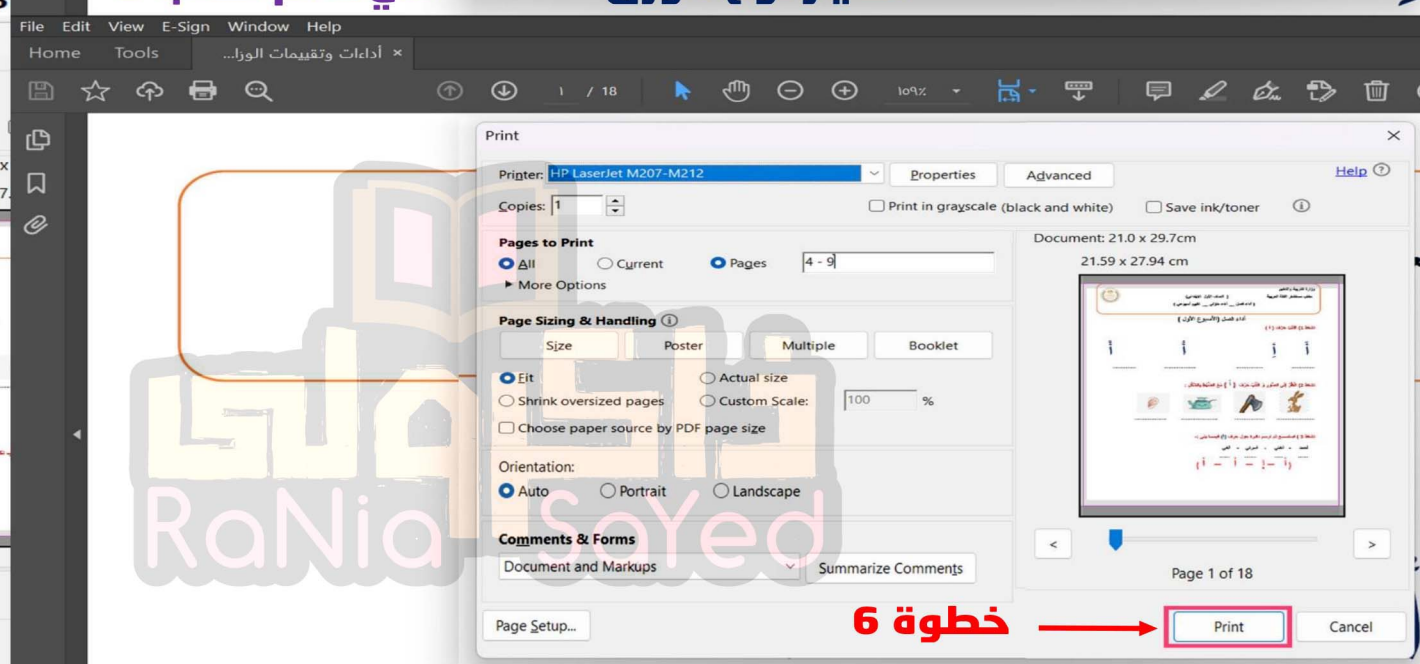
خطوة 2
اختيار اسم
الطابعة
بتاعتك

خطوة 3
كتابة الصفحات
المراد طباعتها
نكتب رقم 4 ثم
نكتب الشرطة
دي - ثم نكتب 9

خطوة 4
اختيار نوع الورق



خطوة 5
اختيار A4



خطوة 6

حمل الآن

مجاناً وحصرياً

المراجعة رقم (2)

اختبار شهر اكتوبر



1- Choose the correct answer:

2

a $x^2 - bx + 15$ is factorizable, then b can be equal to

(8 , 4 , -2 , 1)

b The irrational number between 2 and 3 is

($\sqrt[3]{8}$, $\sqrt{10}$, $2.\bar{5}$, $\sqrt[3]{12}$)

2- Answer each of the following:

8

a Find in $\mathbb{R}$ the solution set of the following equation: $2x^2 + 2 = 18$

.....

.....

.....

.....

b If $X = [-2, 2[$, $Y =]-1, 4]$, find using the number line:

a. $X - Y$

b. $X \cap Y$

c. $X \cup Y$



a.

b.

c.

c Find in the simplest form:

$$4\sqrt[3]{2} + 2\sqrt{7} - 3\sqrt{7} + 2\sqrt[3]{2} - \sqrt{7}$$

.....

.....

.....

d Factorize the following by taking out the G.C.F:

a. $2mn - 6m - 8mnx$

b. $x(y + 2) + 8(y + 2)$

a.

b.

1- Choose the correct answer:

2

- a The number $\sqrt{7}$ lies between two consecutive integers which are
 (2 and 3 , 3 and 4 , 4 and 5 , 5 and 6)
- b The greatest common factor in the polynomial $28x^3y - 7xy^2 - 49xy$ is
 ($7xy$, $-7x$, $7x^2y^2$, $7x^2y$)

2- Answer each of the following:

8

- a Find in $\mathbb{Q}$ the solution set of the following equation: $3x^3 - 2(3x^3 - 1) = 83$

.....

.....

.....

.....

- b If $X = [-3, \infty[$, $Y =]-\infty, 2]$, find using the number line:

a. $X - Y$

b. $X \cap Y$

c. $X \cup Y$



a.

b.

c.

- c Find in the simplest form:

$$(3\sqrt{2} + 2)(\sqrt{2} - 1)$$

.....

.....

.....

- d If $2^x = 3$, then find the numerical value of the following:

a. 2^{x+2}

b. 2^{x-2}

c. $2^{x+2} \times 2^{x-2}$

a.

b.

c.

1- Choose the correct answer:

2

- a If $x + y = 8$, $a - b = 6$, then $x(a-b) - y(b-a) = \dots\dots\dots$. (48 , 14 , 2 , 64)
- b The multiplicative inverse for $\frac{\sqrt{3}}{12}$ is $\dots\dots\dots$. ($2\sqrt{3}$, $4\sqrt{3}$, $-\sqrt{3}$, $3\sqrt{3}$)

2- Answer each of the following:

- a Factorize the following: $(x + 3)^2 - 2(x + 3)^3$

.....

.....

.....

.....

8

- b Find in $\mathbb{R}$ the solution set of the following equations:

a. $x^2 - 8x - 20 = 0$

b. $x^2(x + 2)^2 - (x + 2)^2 = 0$

a.

.....

.....

b.

.....

.....

.....

- c Find in simplest form:

$\sqrt{48} - 2\sqrt{27} + 3\sqrt{\frac{1}{3}}$

.....

.....

.....

- d If $x = 2\sqrt{3}$, $y = 5\sqrt{3}$, find the numerical value of: $(x^2 + y^2)^{-1}$

.....

.....

.....

1- Choose the correct answer:

2

- a What is the estimate value of the number $\sqrt{26}$ to the nearest integer?

(5 , 6 , 7 , 26)

- b The G.C.F in the polynomial $32x^2y + 8xy^2 + 16xy^2$ is

($8xy$, $8x$, $8x^2y^2$, $8x^2y$)

2- Answer each of the following:

8

- a Find in $\mathbb{Q}$ the solution set of the following equation:

$$2x^2 - 7 = 9$$

.....

.....

.....

.....

- b The dimensions of a rectangle are $(3\sqrt{2} + 1)$ cm and $(3\sqrt{2} - 1)$ cm, find the area of the rectangle.

.....

.....

- c Factorize the following: $3x^2 - 18x - 48$

.....

.....

- d Simplify to the simplest form:

$$\frac{(\sqrt{3})^{-9} \times (\sqrt{3})^7}{(\sqrt{3})^{-4} \times (\sqrt{3})^5}$$

.....

.....

1- Choose the correct answer:

2

a If $a - b = 9$, $x + y = 8$, then $a(x + y) - b(x + y) = \dots\dots\dots$.

(8 , 9 , 72 , 17)

b Which of the following represents the factorization of the polynomial: $x^2 + x - 30$?

[$(x+5)(x+6)$, $(x+5)(x-6)$, $(x-5)(x+6)$, $(x-5)(x-6)$]

2- Answer each of the following:

a Simplify to the simplest form:

a. $2\sqrt{7}(\sqrt{7} - 3)$

b. $(\sqrt{5} - 2\sqrt{5})^2$

a.

b.

b If $x = 3\sqrt{3}$, $y = 4\sqrt{2}$, then find the numerical value of: $(x^2 + y^2)^2$

.....
.....
.....
.....

c Find in $\mathbb{R}$ the solution set of the following equations:

a. $x^2 - 2x - 8 = 0$

b. $x(x + 2) = 35$

a.

.....

b.

.....

.....

.....

d If $3^x = 5$, then find the numerical value of the following:

a. 3^{x+1}

b. 3^{x-1}

c. $3^{x+1} \times 3^{x-1}$

a.

b.

c.

1- Choose the correct answer:

a $x^2 - bx + 15$ is factorizable, then b can be equal to

(8 , 4 , -2 , 1)

b The irrational number between 2 and 3 is

($\sqrt[3]{8}$, $\sqrt{10}$, $2.\bar{5}$, $\sqrt[3]{12}$)

2- Answer each of the following:

a Find in $\mathbb{R}$ the solution set of the following equation: $2x^2 + 2 = 18$

$$2x^2 + 2 = 18$$

$$2x^2 = 18 - 2$$

$$\frac{2}{2} x^2 = \frac{16}{2}$$

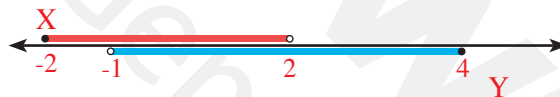
$$x^2 = 8 , \quad x = 2\sqrt{2} , \quad \text{then the solution set} = \{ 2\sqrt{2} , -2\sqrt{2} \}$$

b If $X = [-2, 2[$, $Y =]-1, 4]$, find using the number line:

a. $X - Y$

b. $X \cap Y$

c. $X \cup Y$



a. $[-2, -1]$

b. $]-1, 2[$

c. $[-2, 4]$

c Find in the simplest form:

$$4\sqrt[3]{2} + 2\sqrt{7} - 3\sqrt{7} + 2\sqrt[3]{2} - \sqrt{7}$$

$$= 4\sqrt[3]{2} + 2\sqrt[3]{2} + 2\sqrt{7} - 3\sqrt{7} - \sqrt{7}$$

$$= 6\sqrt[3]{2} - 2\sqrt{7}$$

d Factorize the following by taking out the G.C.F:

a. $2mn - 6m - 8mnx$

b. $x(y + 2) + 8(y + 2)$

a. G.C.F = $2m$, then $2m(n - 3 - 4nx)$

b. G.C.F = $(y + 2)$, $(y + 2)(x + 8)$

1- Choose the correct answer:

- a The number $\sqrt{7}$ lies between two consecutive integers which are
(2 and 3 , 3 and 4 , 4 and 5 , 5 and 6)
- b The greatest common factor in the polynomial $28x^3y - 7xy^2 - 49xy$ is
($7xy$, $-7x$, $7x^2y^2$, $7x^2y$)

2- Answer each of the following:

- a Find in $\mathbb{Q}$ the solution set of the following equation: $3x^3 - 2(3x^3 - 1) = 83$

$$3x^3 - 6x^3 + 2 = 83$$

$$3x^3 - 6x^3 = 81$$

$$\frac{-3}{-3} x^3 = \frac{81}{-3}$$

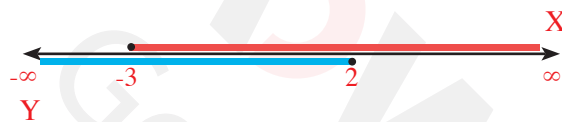
$$x^3 = -27 , \quad x = -3 , \quad \text{then the solution set} = \{-3\}$$

- b If $X = [-3, \infty[$, $Y =]-\infty, 2]$, find using the number line:

a. $X - Y$

b. $X \cap Y$

c. $X \cup Y$



a. $]2, \infty[$

b. $[-3, 2]$

c. $]-\infty, \infty[$

- c Find in the simplest form:

$$(3\sqrt{2} + 2)(\sqrt{2} - 1)$$

$$= 3 \times 2 - 3\sqrt{2} + 2\sqrt{2} - 2$$

$$= 6 - \sqrt{2} - 2$$

$$= 4 - \sqrt{2}$$

- d If $2^x = 3$, then find the numerical value of the following:

a. 2^{x+2}

b. 2^{x-2}

c. $2^{x+2} \times 2^{x-2}$

a. $2^{x+2} = 2^x \times 2^2 = 3 \times 4 = 12$

b. $2^{x-2} = 2^x \times 2^{-2} = 3 \times \frac{1}{4} = \frac{3}{4}$

c. $2^{x+2} \times 2^{x-2} = 12 \times \frac{3}{4} = 9$

1- Choose the correct answer:

- a What is the estimate value of the number $\sqrt{26}$ to the nearest integer?
(5 , 6 , 7 , 26)
- b The G.C.F in the polynomial $32x^2y + 8xy^2 + 16xy^2$ is
($8xy$, $8x$, $8x^2y^2$, $8x^2y$)

2- Answer each of the following:

- a Find in $\mathbb{Q}$ the solution set of the following equation:

$$2x^2 - 7 = 9$$

$$2x^2 - 7 = 9$$

$$2x^2 = 9 + 7$$

$$\frac{2}{2}x^2 = \frac{16}{2}$$

$$x^2 = 8, \quad x = -2\sqrt{2}, \quad 2\sqrt{2}, \quad \text{then the solution set} = \{-2\sqrt{2}, 2\sqrt{2}\}$$

- b The dimensions of a rectangle are $(3\sqrt{2} + 1)$ cm and $(3\sqrt{2} - 1)$ cm, find the area of the rectangle.

$$\text{-Area of rectangle} = \text{Length} \times \text{Width}$$

$$\text{Area of rectangle} = (3\sqrt{2} + 1) \times (3\sqrt{2} - 1) = 18 - 1 = 17 \text{ cm}^2$$

- c Factorize the following: $3x^2 - 18x - 48$

$$3x^2 - 18x - 48 = 3(x^2 - 6x - 16)$$

$$= 3(x + 2)(x - 8)$$

- d Simplify to the simplest form:

$$\frac{(\sqrt{3})^{-9} \times (\sqrt{3})^7}{(\sqrt{3})^{-4} \times (\sqrt{3})^5}$$

$$\frac{(\sqrt{3})^{-9+7}}{(\sqrt{3})^{-4+5}} = \frac{(\sqrt{3})^{-2}}{\sqrt{3}} = (\sqrt{3})^{-2-1} = (\sqrt{3})^{-3} = \frac{\sqrt{3}}{9}$$

1- Choose the correct answer:

- a. If $a - b = 9$, $x + y = 8$, then $a(x + y) - b(x + y) = \dots\dots\dots$.
(8 , 9 , **72** , 17)
- b. Which of the following represents the factorization of the polynomial: $x^2 + x - 30$?
[$(x+5)(x+6)$, $(x+5)(x-6)$, **$(x-5)(x+6)$** , $(x-5)(x-6)$]

2- Answer each of the following:

- a. Simplify to the simplest form:

a. $2\sqrt{7}(\sqrt{7} - 3)$

b. $(\sqrt{5} - 2\sqrt{5})^2$

a. $2\sqrt{7}(\sqrt{7} - 3) = 2 \times 7 - 6\sqrt{7} = 14 - 6\sqrt{7}$

b. $5 - 4 \times \sqrt{5} \times \sqrt{5} + 20 = 5 - 20 + 20 = 5.$

- b. If $x = 3\sqrt{3}$, $y = 4\sqrt{2}$, then find the numerical value of: $(x^2 + y^2)^2$

$(x^2 + y^2)^2 = [(3\sqrt{3})^2 + (4\sqrt{2})^2]^2$

$= (9 \times 3 + 16 \times 2)^2$

$= (27 + 32)^2$

$= (59)^2 = 3,481$

- c. Find in $\mathbb{R}$ the solution set of the following equations:

a. $x^2 - 2x - 8 = 0$

b. $x(x + 2) = 35$

a. $x^2 - 2x - 8 = 0$

$(x - 4)(x + 2) = 0$

$x = 4$, $x = -2$, then the solution set = $\{4, -2\}$

b. $x(x + 2) = 35$

$x^2 + 2x - 35 = 0$

$(x + 7)(x - 5) = 0$

$x = -7$, $x = 5$, then the solution set = $\{-7, 5\}$

- d. If $3^x = 5$, then find the numerical value of the following:

a. 3^{x+1}

b. 3^{x-1}

c. $3^{x+1} \times 3^{x-1}$

a. $3^{x+1} = 3^x \times 3 = 5 \times 3 = 15$

b. $3^{x-1} = 3^x \times 3^{-1} = 5 \times \frac{1}{3} = \frac{5}{3}$

c. $3^{x+1} \times 3^{x-1} = 15 \times \frac{5}{3} = 25$

حمل الآن

مجاناً وحصرياً

المراجعة رقم (3)

اختبار شهر اكتوبر



1

Choose the correct answer.

1) $\mathbb{R} = \dots\dots\dots$

(A) $\mathbb{Q} \cup \mathbb{Q}'$

(B) $\mathbb{Q} \cap \mathbb{Q}'$

(C) $\mathbb{N} \cup \mathbb{Z}$

(D) $\mathbb{Z} \cup \mathbb{Q}'$

2) $\mathbb{Q} \cup \mathbb{Q}' = \dots\dots\dots$

(A) $\emptyset$

(B) $\mathbb{Z}$

(C) $\mathbb{R}$

(D) $\mathbb{N}$

3) $\mathbb{Q} \cap \mathbb{Q}' = \dots\dots\dots$

(A) $\emptyset$

(B) $\mathbb{Z}$

(C) $\mathbb{R}$

(D) $\mathbb{N}$

4) $\mathbb{R} - \mathbb{Q} = \dots\dots\dots$

(A) $\mathbb{Q}$

(B) $\mathbb{Q}'$

(C) $\mathbb{R}$

(D) $\emptyset$

5) $\mathbb{R} - \mathbb{Q}' = \dots\dots\dots$

(A) $\mathbb{Q}$

(B) $\mathbb{Q}'$

(C) $\mathbb{R}$

(D) $\emptyset$

6) $\mathbb{R}_+ \cup \{0\} \cup \mathbb{R}_- = \dots\dots\dots$

(A) $\mathbb{Q}$

(B) $\mathbb{Q}'$

(C) $\mathbb{N}$

(D) $\mathbb{R}$

7) $\mathbb{R}_+ \cap \mathbb{R}_- = \dots\dots\dots$

(A) $\emptyset$

(B) $\mathbb{Z}$

(C) $\mathbb{R}$

(D) $\mathbb{N}$

8) $\mathbb{R}_+ \cup \mathbb{R}_- = \dots\dots\dots$

(A) $\mathbb{Q}$

(B) $\mathbb{Q}'$

(C) $\mathbb{R}^*$

(D) $\mathbb{R}$

9) $\mathbb{R} - \{0\} = \dots\dots\dots$

(A) $\mathbb{Q}$

(B) $\mathbb{Q}'$

(C) $\mathbb{R}^*$

(D) $\mathbb{R}$

10) $\mathbb{R}^* \cup \{0\} = \dots\dots\dots$

(A) $\mathbb{Q}$

(B) $\emptyset$

(C) $\mathbb{R}^*$

(D) $\mathbb{R}$

11) $\mathbb{R}^* \cap \{0\} = \dots\dots\dots$

(A) $\mathbb{Q}$

(B) $\emptyset$

(C) $\mathbb{R}^*$

(D) $\mathbb{R}$

12) $\mathbb{R}_+ \cap \{-1, 0, 1\} = \dots\dots\dots$

(A) $\mathbb{R}_+$

(B) $\{-1\}$

(C) $\{0\}$

(D) $\{1\}$

13) $\mathbb{R}_- \cap \{-1, 0, 1\} = \dots\dots\dots$

(A) $\mathbb{R}_-$

(B) $\{-1\}$

(C) $\{0\}$

(D) $\{1\}$

14) Which of the following numbers is an irrational number?

- (A) $0.\bar{3}$ (B) $\sqrt{\frac{9}{25}}$ (C) $\sqrt{5}$ (D) $\sqrt[3]{-125}$

15) If $x \in \mathbb{Z}$, $x < \sqrt{29} < x + 1$, what is the value of x ?

- (A) 4 (B) 5 (C) 6 (D) 7

16) If $x \in \mathbb{Z}$, $x < \sqrt{12} < x + 1$, what is the value of x ?

- (A) 3.4 (B) 3 (C) 4 (D) -3

17) The number of $\sqrt{10}$ lies between two consecutive integers these integers are

- (A) 2 and 3 (B) 3 and 4 (C) 4 and 5 (D) 5 and 6

18) $\sqrt[3]{-125} + 3 = \dots\dots\dots$

- (A) zero (B) 3 (C) 6 (D) -24

19) Estimating $\sqrt{41}$ to the closest integer is

- (A) 6 (B) 7 (C) 36 (D) 49

20) Estimating $\sqrt[3]{25}$ to the closest integer is

- (A) 2 (B) 3 (C) 5 (D) 12.5

21) $\sqrt{10} \simeq \dots\dots\dots$

- (A) 2.99 (B) 3.71 (C) 3 (D) 3.2

22) Which of the following numbers is an irrational number that lies between 2 and 3?

- (A) $2.\bar{5}$ (B) $\sqrt{10}$ (C) $\sqrt{6.25}$ (D) $\sqrt[3]{9}$

23) Which of the following numbers is an irrational number that lies between -1 and -2?

- (A) -3 (B) $-1\frac{1}{2}$ (C) $-\sqrt{3}$ (D) $\sqrt{2}$

24) If $1 < \sqrt{n} < 2$, which of the following is a possible value for the number n ?

- (A) 1 (B) 2 (C) 4 (D) 8

25) The side length of a square with an area of 6 cm^2 is

- (A) a natural number (B) an integer (C) a rational number (D) an irrational number

26) What is the length of the side of a square with an area of 10 cm^2 ?

- (A) 5 cm (B) - 5 cm (C) $\sqrt{10}$ cm (D) $-\sqrt{10}$ cm

27) What is the solution set of the equation: $x^2 + 1 = 0$ in $\mathbb{R}$ is

- (A) $\{-1\}$ (B) $\{1, -1\}$ (C) $\{1\}$ (D) $\emptyset$

28) The solution set of the equation: $x^3 = 8$ in $\mathbb{R}$ is

- (A) $\{-2\}$ (B) $\{2\}$ (C) $\{-2, 2\}$ (D) $\emptyset$

29) The solution set of the equation: $x^3 = 8$ in $\mathbb{Q}$ is

- (A) $\{-2\}$ (B) $\{2\}$ (C) $\{-2, 2\}$ (D) $\emptyset$

30) If x is a negative real number, which of the following numbers is positive?

- (A) x^2 (B) x^3 (C) $2x$ (D) $\frac{x}{3}$

31) $\mathbb{R} = \dots\dots\dots$

- (A) $\mathbb{R}_+ \cap \mathbb{R}_-$ (B) $\mathbb{R}_+ \cup \mathbb{R}_-$ (C) $] - \infty, \infty[$ (D) $\mathbb{Q} \cap \mathbb{Q}'$

32) $\mathbb{R}_+ = \dots\dots\dots$

- (A) $]0, \infty[$ (B) $] - \infty, 0[$ (C) $[0, \infty[$ (D) $] - \infty, 0]$

33) $\mathbb{R}_- = \dots\dots\dots$

- (A) $]0, \infty[$ (B) $] - \infty, 0[$ (C) $[0, \infty[$ (D) $] - \infty, 0]$

34) $\mathbb{R} - \mathbb{R}_- = \dots\dots\dots$

- (A) $\mathbb{R}_+$ (B) $] - \infty, 0]$ (C) $[0, \infty[$ (D) $] - \infty, 0[$

35) $\mathbb{R} - \mathbb{R}_+ = \dots\dots\dots$

- (A) $\mathbb{R}_-$ (B) $] - \infty, 0[$ (C) $[0, \infty[$ (D) $] - \infty, 0]$

36) The set of non-negative real numbers is

- (A) $]0, \infty[$ (B) $] - \infty, 0[$ (C) $[0, \infty[$ (D) $] - \infty, 0]$

37) The set of non-positive real numbers is

- (A) $]0, \infty[$ (B) $] - \infty, 0[$ (C) $[0, \infty[$ (D) $] - \infty, 0]$

38) If $a \in]2, 5]$, which of the following can be the value of a ?

- (A) 1 (B) 2 (C) 4 (D) 5

39) If $a \notin]-1, 3]$, which of the following can be the value of a ?

- (A) -1 (B) 0 (C) 2 (D) 3

40) $|-4| \dots\dots\dots [3, \infty[$

- (A) $\in$ (B) $\notin$ (C) $\subset$ (D) $\not\subset$

41) $\sqrt[3]{25} \dots\dots\dots] - \sqrt{25}, \sqrt{25}]$

- (A) $\in$ (B) $\notin$ (C) $\subset$ (D) $\not\subset$

42) $\mathbb{R}_+ \dots\dots\dots [0, \infty[$

- (A) $\in$ (B) $\notin$ (C) $\subset$ (D) $\not\subset$

43) $\mathbb{R}_- \dots\dots\dots [0, \infty[$

- (A) $\in$ (B) $\notin$ (C) $\subset$ (D) $\not\subset$

44) $\mathbb{R}_- \dots\dots\dots] - \infty, \infty[$

- (A) $\in$ (B) $\notin$ (C) $\subset$ (D) $\not\subset$

45) $\mathbb{R}^* \dots\dots\dots]0, \infty[$

- (A) $\in$ (B) $\notin$ (C) $\subset$ (D) $\not\subset$

46) $\mathbb{Z}_+ \dots\dots\dots [0, \infty[$

- (A) $\in$ (B) $\notin$ (C) $\subset$ (D) $\not\subset$

47) $\mathbb{Z}_- \dots\dots\dots [0, \infty[$

- (A) $\in$ (B) $\notin$ (C) $\subset$ (D) $\not\subset$

48) $\mathbb{N} \dots\dots\dots]0, \infty[$

- (A) $\in$ (B) $\notin$ (C) $\subset$ (D) $\not\subset$

49) $\mathbb{N} \dots\dots\dots [0, \infty[$

- (A) $\in$ (B) $\notin$ (C) $\subset$ (D) $\not\subset$

50) $\mathbb{R} \cup [2, 5[= \dots\dots\dots$

- (A) $\mathbb{R}$ (B) $[2, 5[$ (C) $]2, 5[$ (D) $\emptyset$

51) $\mathbb{R} \cup \{2, 5\} = \dots\dots\dots$

- (A) $\mathbb{R}$ (B) $\{2, 5\}$ (C) $]2, 5[$ (D) $\emptyset$

52) $\mathbb{R} \cap [2, 5[= \dots\dots\dots$

- (A) $\mathbb{R}$ (B) $[2, 5[$ (C) $]2, 5[$ (D) $\emptyset$

53) $\mathbb{R} \cap \{2, 5\} = \dots\dots\dots$

- (A) $\mathbb{R}$ (B) $\{2, 5\}$ (C) $]2, 5[$ (D) $\emptyset$

54) $]2, 5[\cup \{2\} = \dots\dots\dots$

- (A) $]2, 5[$ (B) $[2, 5]$ (C) $]2, 5]$ (D) $[2, 5[$

55) $]3, 4[\cup \{3, 4\} = \dots\dots\dots$

- (A) $[3, 4[$ (B) $]3, 4]$ (C) $]3, 4[$ (D) $[3, 4]$

56) $\{3\} \cap [3, 6] = \dots\dots\dots$

- (A) $\emptyset$ (B) $\{3\}$ (C) $[3, 6]$ (D) $\{6\}$

57) $]3, 4[\cap \{3, 4\} = \dots\dots\dots$

- (A) $\emptyset$ (B) $]3, 4]$ (C) $]3, 4[$ (D) $[3, 4]$

58) $] - 1, 1[\cap \{1, 0, -1\} =$

- (A) $\{1\}$ (B) $\{-1, 1\}$ (C) $[-1, 1]$ (D) $\{0\}$

59) $[3, 5] - \{5\} = \dots\dots\dots$

- (A) $[3, 4]$ (B) $[3, 5[$ (C) $\{3, 4\}$ (D) $]3, 5]$

60) $[2, 5] - \{2, 5\} = \dots\dots\dots$

- (A) $\{2, 5\}$ (B) $[2, 5[$ (C) $]2, 5[$ (D) $\emptyset$

61) $[1, 3] - \{1, 3\} = \dots\dots\dots$

- (A) $]1, 3[$ (B) $[1, 3[$ (C) $] - 3, -1[$ (D) $] - 1, 3]$

62) $\{3, 4, 5\} -]3, 5[= \dots\dots\dots$

- (A) $\emptyset$ (B) $\{3, 5\}$ (C) $[3, 5]$ (D) $\{4\}$

63) What is the sum of all real numbers in the interval $[-25, 25]$?

- (A) -25 (B) 25 (C) 0 (D) 50

64) What is the sum of all real numbers in the interval $] - 25, 25[$?

- (A) -25 (B) 25 (C) 0 (D) 50

65) What is the sum of all real numbers in the interval $[-25, 25[$?

- (A) -25 (B) 25 (C) 0 (D) 50

66) What is the sum of all real numbers in the interval $] - 25, 25]$?

- (A) -25 (B) 25 (C) 0 (D) 50

67) If $x \in [-3, 4]$, then $x^2 \in \dots\dots\dots$

- (A) $[9, 16]$ (B) $[0, 9]$ (C) $[0, 16]$ (D) $[-9, 0]$

68) If $x \in [-5, 4]$, then $x^2 \in \dots\dots\dots$

- (A) $[0, 16]$ (B) $[16, 25]$ (C) $[0, 25]$ (D) $[-5, 0]$

69) If $X =] - \infty, 3[$, then $X' = \dots\dots\dots$

- (A) $]3, \infty[$ (B) $[0, 3[$ (C) $[3, \infty[$ (D) $] - \infty, 0[$

70) What is the value of $\sqrt{5} + \sqrt{5}$?

- (A) $\sqrt{10}$ (B) $\sqrt{20}$ (C) 5 (D) 10

71) $2\sqrt{7} - 3\sqrt{3} + \sqrt{7} + 2\sqrt{3} = \dots\dots\dots$

- (A) $\sqrt{7} - 5\sqrt{3}$ (B) $3\sqrt{7} + 5\sqrt{3}$ (C) $3\sqrt{7} + \sqrt{3}$ (D) $3\sqrt{7} - \sqrt{3}$

72) $5 + 7\sqrt{2} - 4 + \sqrt{2} = \dots\dots\dots$

- (A) 15 (B) $1 + 7\sqrt{2}$ (C) $1 + 8\sqrt{2}$ (D) $1 + 6\sqrt{2}$

73) What is the value of $\frac{\sqrt{63}}{\sqrt{7}}$?

- (A) 3 (B) $\sqrt{3}$ (C) 9 (D) ± 3

74) What is the additive inverse of the number $\frac{7}{\sqrt{7}}$ in the simplest form?

- (A) $\frac{\sqrt{7}}{7}$ (B) 7 (C) $-\sqrt{7}$ (D) -7

75) What is the additive inverse of the number $3\sqrt{7} - 4$ is $\dots\dots\dots$

- (A) $-3\sqrt{7} - 4$ (B) $4 - 3\sqrt{7}$ (C) $3\sqrt{7} + 4$ (D) $-4 + 3\sqrt{7}$

76) If $a + \sqrt{5} = 0$, what is the value of a ?

- (A) 0 (B) $\sqrt{5}$ (C) $-\sqrt{5}$ (D) $\frac{1}{\sqrt{5}}$

77) What is the multiplicative inverse of the number $\sqrt{5}$?

- (A) -5 (B) $\frac{-1}{5}$ (C) $\frac{5}{\sqrt{5}}$ (D) $\frac{\sqrt{5}}{5}$

78) What is the multiplicative inverse of the number $\sqrt{3} - 2$?

- (A) $2 - \sqrt{3}$ (B) $\sqrt{3} + 2$ (C) $-\sqrt{3} - 2$ (D) $\sqrt{3} - 2$

79) What is the multiplicative inverse of the number $\frac{2\sqrt{3}}{5}$?

- (A) $\frac{5}{\sqrt{3}}$ (B) $\frac{6}{5\sqrt{3}}$ (C) $\frac{6}{\sqrt{3}}$ (D) $\frac{5\sqrt{3}}{6}$

80) If $a \times \sqrt{2} = 1$, what is the value of a ?

- (A) 1 (B) $\sqrt{2}$ (C) $-\sqrt{2}$ (D) $\frac{\sqrt{2}}{2}$

81) $\sqrt{6} \times (\sqrt{6})^x = 1$, what is the value of x ?

- (A) 0 (B) 1 (C) -1 (D) -2

82) $x^{m-1} \times \dots = 1, x \neq 0$

- (A) x^{m-1} (B) x^{-m-1} (C) x^{-m+1} (D) $x^{-m \pm 1}$

83) If $a\sqrt{5} - 4\sqrt{5} = 3\sqrt{5}$, then

- (A) $a = -1$ (B) $a = 1$ (C) $a = 7$ (D) $a = 10$

84) If $\sqrt[3]{5} + 3a = 4\sqrt[3]{5}$, then

- (A) $a = 1$ (B) $a = \sqrt{5}$ (C) $a = \sqrt[3]{5}$ (D) $a = 5$

85) If $x = \sqrt{2} + 10$, $y = \sqrt{2} - 10$, what is the value of $(x + y)^2$?

- (A) 4 (B) 6 (C) 8 (D) $4\sqrt{2}$

86) If $\frac{x}{3\sqrt{2}} = \frac{y}{2\sqrt{5}} = 1$, then the value of $x^2 + y^2 = \dots$

- (A) 36 (B) 38 (C) 42 (D) 45

87) The area of the rectangle with dimensions $(\sqrt{7} + 1)\text{cm}$ and $(\sqrt{7} - 1)\text{cm}$ is cm^2

- (A) 8 (B) 7 (C) 6 (D) $2\sqrt{7}$

88) $\sqrt{48} = \dots$

- (A) $3\sqrt{2}$ (B) $4\sqrt{3}$ (C) $2\sqrt{6}$ (D) $6\sqrt{2}$

89) $4\sqrt{\frac{1}{2}} = \dots\dots\dots$

(A) $2\sqrt{2}$

(B) $\frac{1}{2}\sqrt{2}$

(C) 2

(D) $\sqrt{2}$

90) $5\sqrt[3]{\frac{1}{5}} = \dots\dots\dots$

(A) $\sqrt[3]{5}$

(B) 5

(C) $\sqrt[3]{25}$

(D) $\sqrt{5}$

91) If $\sqrt{160} = x\sqrt{10}$, what is the value of x ?

(A) 8

(B) 6

(C) 4

(D) 3

92) If $a\sqrt[3]{2} = \sqrt[3]{3} \times \sqrt[3]{10}$, what is the value of a ?

(A) 30

(B) $\sqrt[3]{30}$

(C) 15

(D) $\sqrt[3]{15}$

93) If $2\sqrt{3} \times 4a = 8\sqrt{6}$, what is the value of a ?

(A) $\sqrt{2}$

(B) $\sqrt{3}$

(C) 2

(D) $\sqrt{6}$

94) If $2\sqrt{27} - 2\sqrt{48} = x\sqrt{3}$, what is the value of x ?

(A) 2

(B) -2

(C) 0

(D) 3

95) If $x + \sqrt{28} = \sqrt{7}$, what is the value of x ?

(A) $\sqrt{21}$

(B) $-\sqrt{21}$

(C) $\sqrt{7}$

(D) $-\sqrt{7}$

96) If $\frac{\sqrt{3}}{\sqrt{a}} = \frac{\sqrt{2}}{\sqrt{6}}$, what is the value of a ?

(A) $\sqrt{3}$

(B) $\sqrt{6}$

(C) 3

(D) 9

97) The next number in the pattern: $\sqrt{5}, \sqrt{20}, \sqrt{45}, \sqrt{80}, \dots$ is

(A) $2\sqrt{5}$

(B) $\sqrt{100}$

(C) $\sqrt{120}$

(D) $5\sqrt{5}$

98) The next number in the pattern: $\sqrt{3}, \sqrt{12}, \sqrt{27}, \sqrt{48}, \dots$ is

(A) $\sqrt{72}$

(B) $\sqrt{75}$

(C) $\sqrt{54}$

(D) $\sqrt{80}$

99) What is the value of $5^2 + 5^2 = \dots\dots\dots$

(A) 10^2

(B) 10^4

(C) 5^4

(D) 50

100) What is the value of $4^2 + 4^2 + 4^2 + 4^2$?

(A) 4^2

(B) 4^3

(C) 4^8

(D) 4^{16}

101) What is the result of $\frac{(ab)^3}{b^3}$?

- (A) a^3 (B) $\frac{a}{b}$ (C) $\frac{a^3}{b^2}$ (D) $\frac{a^2}{b^3}$

102) What is the four times of the number 2^8 ?

- (A) 2^{32} (B) 8^8 (C) 2^{10} (D) 4^8

103) What is the quarter of the number 4^{20} ?

- (A) 1^{10} (B) 4^{19} (C) 4^{16} (D) 4^5

104) Half of the number 2^{10} is

- (A) 2^5 (B) 2^{10} (C) 2^9 (D) 2^{11}

105) If $2^x = 3$, what is the value of 2^{x+1} ?

- (A) 4 (B) 5 (C) 6 (D) 9

106) If $(x - 3)^0 = 1$, then $x \in$

- (A) $\mathbb{R} - \{3\}$ (B) $\mathbb{R}$ (C) $\{3\}$ (D) $\mathbb{R} - \{-3\}$

107) What is the perimeter of the square whose area is $a \text{ cm}^2$?

- (A) $a^4 \text{ cm}$ (B) $(\sqrt{a})^4 \text{ cm}$ (C) $4\sqrt{a} \text{ cm}$ (D) $a \text{ 4 cm}$

108) $6a - 8b =$

- (A) $6(a - 2b)$ (B) $4(2a - 4b)$ (C) $2(3a - 4b)$ (D) $14(a - b)$

109) Which of the following expresses the arithmetic mean of the two numbers 2^{x+1} and 2^x where $x \in \mathbb{Z}$?

- (A) 2 (B) 2^{2x+1} (C) $2^{x-1} + 2^x$ (D) $2^{x+1} + 2^x$

110) What is the greatest common factor between the terms of the polynomial $12x^2 - 8x$?

- (A) 2 (B) 4 (C) $2x$ (D) $4x$

111) Which of the following represents the factorization of the polynomial $16x^2 - 24x^3$ by taking out GCF?

- (A) $8x(2x - 3x^2)$ (B) $4x^2(4 - 6x)$ (C) $8x^2(2 - 3x)$ (D) $8(2x^2 - 3x^3)$

112) $x(a + b) + y(a + b) =$

- (A) $(x - y)(a - b)$ (B) $(x + y)(a + b)$ (C) $(x - y)(a + b)$ (D) $(x + y)(a - b)$

113) $x + 2y = 7$, then what is the value of $2x + 4y$?

- (A) 14 (B) 28 (C) 18 (D) 56

114) $n - 5m = 10$, then what is the value of $10m - 2n$?

- (A) 100 (B) -100 (C) 20 (D) -20

115) $3x + 3y = 18$, then what is the value of $x + y$?

- (A) 54 (B) 15 (C) 6 (D) 2

116) $x^2(3a - b) - y(b - 3a) = (3a - b)(\dots\dots\dots)$

- (A) $x^2 + y$ (B) $x^2 - y$ (C) $y - x^2$ (D) $y^2 - x$

117) If $x + y = 10$, $a - b = 7$, then $x(a - b) - y(b - a) = \dots\dots\dots$

- (A) 3 (B) 17 (C) 51 (D) 70

2

Answer the following questions

1) Simplify to the simplest form:

a) $\sqrt{5} - \sqrt{3} + 2\sqrt{5} + \sqrt{3}$

.....

b) $\sqrt{50} + \sqrt{8}$

.....

c) $\frac{1}{3}\sqrt{162} + \sqrt{72} - \sqrt{18} - \sqrt{50}$

.....

d) $\frac{(10)^{2n \times 0.001}}{(10)^{-n+1} \times 100}$ and find the value of the result when $n = 2$

.....

e) $\frac{(\sqrt{7})^{-4} \times (\sqrt{7})^{-3}}{(\sqrt{7})^{-9}}$

.....

.....

f) $\frac{(\sqrt{6})^{n+2} \times (\sqrt{3})^n}{4 \times (\sqrt{2})^{n-2}}$

.....

.....

g) $(\sqrt{5} - 2)^2 + (\sqrt{5} + 3)(\sqrt{5} - 2)$

.....

.....

2) If $3^x = 7$, find the value of each of:

a) 3^{x-2}

b) 3^{x+2}

.....

.....

3) If $5^x = 6$, find the value of each of:

a) 5^{x+1}

b) 5^{x-2}

.....

.....

4) If $x = 2\sqrt{2}$, $y = 3$, find the value of the expression $x^2 - y^2$

.....

.....

5) If $x = \sqrt{7} - \sqrt{3}$, $y = \frac{4}{\sqrt{7} + \sqrt{3}}$ find the value of the expression $(x + y)^2$

.....

.....

6) If $a = \sqrt{3} + \sqrt{2}$, $b = \frac{1}{\sqrt{3} + \sqrt{2}}$ Find $(a - b)^2$

.....

.....

7) If $x = \sqrt{7} + 2$, $y = \frac{3}{x}$ find the value of the expression $(x + y)^2$

.....

.....

8) Find using the number line:

a) $] - \infty, 6[\cup] 4, \infty[$

.....

.....

b) $[-1, 4] \cup [2, 5]$

.....

.....

9) If $X = [-1, 3[$, $Y = [2, 5[$, find using the number line:

a) $X \cup Y$

b) $X \cap Y$

c) $Y - X$

.....

.....

10) If $A = [-1, 3[$, $B = [2, 5[$, find using the number line:

d) $A \cup B$

e) $A \cap B$

f) $A - B$

g) $B - A$

11) Find the solution set of each of the following in $\mathbb{R}$:

a) $2x^2 - 3 = 9$

b) $x^2 - 11 = 5$

c) $x^2 - x = 0$

12) Make the denominator of the number $\frac{6}{\sqrt{6}}$ an integer.

13) The dimensions of the rectangle are $(6 + \sqrt{5})cm$ and $(6 - \sqrt{5})cm$, calculate the area.

- 14) If the total area of a cube is 240 cm^2 , then find the length of its edge to the nearest centimeter.

.....

.....

- 15) A square with side length of $5\sqrt{2} \text{ cm}$, find its area.

.....

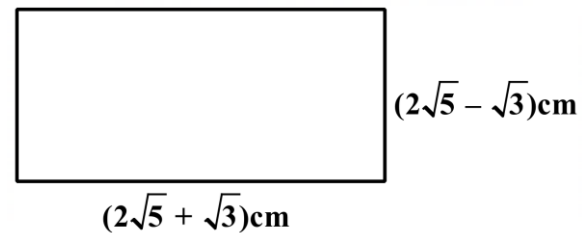
.....

- 16) A square with side length of 8 cm , find the length of diagonal.

.....

.....

- 17) Find the area of the opposite rectangle.



.....

.....

- 18) factorization by taking the greatest common factor: $a(b+5)+2(b+5)$

.....

.....

- 19) Find the value of the following using factorization by taking the greatest common factor: $11 \times 123 + 11 \times 35 - 11 \times 58$

.....

.....

1

Choose the correct answer.

1) $\mathbb{R} = \dots\dots\dots$

☒ (A) $\mathbb{Q} \cup \mathbb{Q}'$ ☐ (B) $\mathbb{Q} \cap \mathbb{Q}'$ ☐ (C) $\mathbb{N} \cup \mathbb{Z}$ ☐ (D) $\mathbb{Z} \cup \mathbb{Q}'$

2) $\mathbb{Q} \cup \mathbb{Q}' = \dots\dots\dots$

☐ (A) $\emptyset$ ☐ (B) $\mathbb{Z}$ ☒ (C) $\mathbb{R}$ ☐ (D) $\mathbb{N}$

3) $\mathbb{Q} \cap \mathbb{Q}' = \dots\dots\dots$

☒ (A) $\emptyset$ ☐ (B) $\mathbb{Z}$ ☐ (C) $\mathbb{R}$ ☐ (D) $\mathbb{N}$

4) $\mathbb{R} - \mathbb{Q} = \dots\dots\dots$

☐ (A) $\mathbb{Q}$ ☒ (B) $\mathbb{Q}'$ ☐ (C) $\mathbb{R}$ ☐ (D) $\emptyset$

5) $\mathbb{R} - \mathbb{Q}' = \dots\dots\dots$

☒ (A) $\mathbb{Q}$ ☐ (B) $\mathbb{Q}'$ ☐ (C) $\mathbb{R}$ ☐ (D) $\emptyset$

6) $\mathbb{R}_+ \cup \{0\} \cup \mathbb{R}_- = \dots\dots\dots$

☐ (A) $\mathbb{Q}$ ☐ (B) $\mathbb{Q}'$ ☐ (C) $\mathbb{N}$ ☒ (D) $\mathbb{R}$

7) $\mathbb{R}_+ \cap \mathbb{R}_- = \dots\dots\dots$

☒ (A) $\emptyset$ ☐ (B) $\mathbb{Z}$ ☐ (C) $\mathbb{R}$ ☐ (D) $\mathbb{N}$

8) $\mathbb{R}_+ \cup \mathbb{R}_- = \dots\dots\dots$

☐ (A) $\mathbb{Q}$ ☐ (B) $\mathbb{Q}'$ ☒ (C) $\mathbb{R}^*$ ☐ (D) $\mathbb{R}$

9) $\mathbb{R} - \{0\} = \dots\dots\dots$

☐ (A) $\mathbb{Q}$ ☐ (B) $\mathbb{Q}'$ ☒ (C) $\mathbb{R}^*$ ☐ (D) $\mathbb{R}$

10) $\mathbb{R}^* \cup \{0\} = \dots\dots\dots$

☐ (A) $\mathbb{Q}$ ☐ (B) $\emptyset$ ☐ (C) $\mathbb{R}^*$ ☒ (D) $\mathbb{R}$

11) $\mathbb{R}^* \cap \{0\} = \dots\dots\dots$

☐ (A) $\mathbb{Q}$ ☒ (B) $\emptyset$ ☐ (C) $\mathbb{R}^*$ ☐ (D) $\mathbb{R}$

12) $\mathbb{R}_+ \cap \{-1, 0, 1\} = \dots\dots\dots$

☐ (A) $\mathbb{R}_+$ ☐ (B) $\{-1\}$ ☐ (C) $\{0\}$ ☒ (D) $\{1\}$

13) $\mathbb{R}_- \cap \{-1, 0, 1\} = \dots\dots\dots$

☐ (A) $\mathbb{R}_-$ ☒ (B) $\{-1\}$ ☐ (C) $\{0\}$ ☐ (D) $\{1\}$

14) Which of the following numbers is an irrational number?

(A) $0.\bar{3}$

(B) $\sqrt{\frac{9}{25}}$

(C) $\sqrt{5}$

(D) $\sqrt[3]{-125}$

15) If $x \in \mathbb{Z}$, $x < \sqrt{29} < x + 1$, what is the value of x ?

(A) 4

(B) 5

(C) 6

(D) 7

16) If $x \in \mathbb{Z}$, $x < \sqrt{12} < x + 1$, what is the value of x ?

(A) 3.4

(B) 3

(C) 4

(D) -3

17) The number of $\sqrt{10}$ lies between two consecutive integers these integers are

(A) 2 and 3

(B) 3 and 4

(C) 4 and 5

(D) 5 and 6

18) $\sqrt[3]{-125} + 3 = \dots\dots\dots$

(A) zero

(B) 3

(C) 6

(D) -24

19) Estimating $\sqrt{41}$ to the closest integer is

(A) 6

(B) 7

(C) 36

(D) 49

20) Estimating $\sqrt[3]{25}$ to the closest integer is

(A) 2

(B) 3

(C) 5

(D) 12.5

21) $\sqrt{10} \simeq \dots\dots\dots$

(A) 2.99

(B) 3.71

(C) 3

(D) 3.2

22) Which of the following numbers is an irrational number that lies between 2 and 3?

(A) $2.\bar{5}$

(B) $\sqrt{10}$

(C) $\sqrt{6.25}$

(D) $\sqrt[3]{9}$

23) Which of the following numbers is an irrational number that lies between -1 and -2?

(A) -3

(B) $-1\frac{1}{2}$

(C) $-\sqrt{3}$

(D) $\sqrt{2}$

24) If $1 < \sqrt{n} < 2$, which of the following is a possible value for the number n ?

(A) 1

(B) 2

(C) 4

(D) 8

25) The side length of a square with an area of 6 cm^2 is

(A) a natural number

(B) an integer

(C) a rational number

(D) an irrational number

26) What is the length of the side of a square with an area of 10 cm^2 ?

(A) 5 cm

(B) - 5 cm

(C) $\sqrt{10}$ cm

(D) $-\sqrt{10}$ cm

27) What is the solution set of the equation: $x^2 + 1 = 0$ in $\mathbb{R}$ is

(A) $\{-1\}$

(B) $\{1, -1\}$

(C) $\{1\}$

(D) $\emptyset$

28) The solution set of the equation: $x^3 = 8$ in $\mathbb{R}$ is

(A) $\{-2\}$

(B) $\{2\}$

(C) $\{-2, 2\}$

(D) $\emptyset$

29) The solution set of the equation: $x^3 = 8$ in $\mathbb{Q}$ is

(A) $\{-2\}$

(B) $\{2\}$

(C) $\{-2, 2\}$

(D) $\emptyset$

30) If x is a negative real number, which of the following numbers is positive?

(A) x^2

(B) x^3

(C) $2x$

(D) $\frac{x}{3}$

31) $\mathbb{R} = \dots\dots\dots$

(A) $\mathbb{R}_+ \cap \mathbb{R}_-$

(B) $\mathbb{R}_+ \cup \mathbb{R}_-$

(C) $] - \infty, \infty[$

(D) $\mathbb{Q} \cap \mathbb{Q}'$

32) $\mathbb{R}_+ = \dots\dots\dots$

(A) $]0, \infty[$

(B) $] - \infty, 0[$

(C) $[0, \infty[$

(D) $] - \infty, 0]$

33) $\mathbb{R}_- = \dots\dots\dots$

(A) $]0, \infty[$

(B) $] - \infty, 0[$

(C) $[0, \infty[$

(D) $] - \infty, 0]$

34) $\mathbb{R} - \mathbb{R}_- = \dots\dots\dots$

(A) $\mathbb{R}_+$

(B) $] - \infty, 0]$

(C) $[0, \infty[$

(D) $] - \infty, 0[$

35) $\mathbb{R} - \mathbb{R}_+ = \dots\dots\dots$

(A) $\mathbb{R}_-$

(B) $] - \infty, 0[$

(C) $[0, \infty[$

(D) $] - \infty, 0]$

36) The set of non-negative real numbers is

(A) $]0, \infty[$

(B) $] - \infty, 0[$

(C) $[0, \infty[$

(D) $] - \infty, 0]$

37) The set of non-positive real numbers is

(A) $]0, \infty[$

(B) $] - \infty, 0[$

(C) $[0, \infty[$

(D) $] - \infty, 0]$

38) If $a \in]2, 5]$, which of the following can be the value of a ?

(A) 1

(B) 2

(C) 4

(D) 5

39) If $a \notin]-1, 3]$, which of the following can be the value of a ?

(A) -1

(B) 0

(C) 2

(D) 3

40) $|-4| \dots\dots\dots [3, \infty[$

(A) $\in$

(B) $\notin$

(C) $\subset$

(D) $\not\subset$

41) $\sqrt[3]{25} \dots\dots\dots] - \sqrt{25}, \sqrt{25}]$

(A) $\in$

(B) $\notin$

(C) $\subset$

(D) $\not\subset$

42) $\mathbb{R}_+ \dots\dots\dots [0, \infty[$

(A) $\in$

(B) $\notin$

(C) $\subset$

(D) $\not\subset$

43) $\mathbb{R}_- \dots\dots\dots [0, \infty[$

(A) $\in$

(B) $\notin$

(C) $\subset$

(D) $\not\subset$

44) $\mathbb{R}_- \dots\dots\dots] - \infty, \infty[$

(A) $\in$

(B) $\notin$

(C) $\subset$

(D) $\not\subset$

45) $\mathbb{R}^* \dots\dots\dots]0, \infty[$

(A) $\in$

(B) $\notin$

(C) $\subset$

(D) $\not\subset$

46) $\mathbb{Z}_+ \dots\dots\dots [0, \infty[$

(A) $\in$

(B) $\notin$

(C) $\subset$

(D) $\not\subset$

47) $\mathbb{Z}_- \dots\dots\dots [0, \infty[$

(A) $\in$

(B) $\notin$

(C) $\subset$

(D) $\not\subset$

48) $\mathbb{N} \dots\dots\dots]0, \infty[$

(A) $\in$

(B) $\notin$

(C) $\subset$

(D) $\not\subset$

49) $\mathbb{N} \dots\dots\dots [0, \infty[$

(A) $\in$

(B) $\notin$

(C) $\subset$

(D) $\not\subset$

50) $\mathbb{R} \cup [2, 5[= \dots\dots\dots$

(A) $\mathbb{R}$

(B) $[2, 5[$

(C) $]2, 5[$

(D) $\emptyset$

51) $\mathbb{R} \cup \{2, 5\} = \dots\dots\dots$

(A) $\mathbb{R}$

(B) $\{2, 5\}$

(C) $]2, 5[$

(D) $\emptyset$

52) $\mathbb{R} \cap [2, 5[= \dots\dots\dots$

☐ (A) $\mathbb{R}$ ☒ (B) $[2, 5[$ ☐ (C) $]2, 5[$ ☐ (D) $\emptyset$

53) $\mathbb{R} \cap \{2, 5\} = \dots\dots\dots$

☐ (A) $\mathbb{R}$ ☒ (B) $\{2, 5\}$ ☐ (C) $]2, 5[$ ☐ (D) $\emptyset$

54) $]2, 5[\cup \{2\} = \dots\dots\dots$

☐ (A) $]2, 5[$ ☐ (B) $[2, 5]$ ☐ (C) $]2, 5]$ ☒ (D) $[2, 5[$

55) $]3, 4[\cup \{3, 4\} = \dots\dots\dots$

☐ (A) $[3, 4[$ ☐ (B) $]3, 4]$ ☐ (C) $]3, 4[$ ☒ (D) $[3, 4]$

56) $\{3\} \cap [3, 6] = \dots\dots\dots$

☐ (A) $\emptyset$ ☒ (B) $\{3\}$ ☐ (C) $[3, 6]$ ☐ (D) $\{6\}$

57) $]3, 4[\cap \{3, 4\} = \dots\dots\dots$

☒ (A) $\emptyset$ ☐ (B) $]3, 4]$ ☐ (C) $]3, 4[$ ☐ (D) $[3, 4]$

58) $] - 1, 1[\cap \{1, 0, -1\} = \dots\dots\dots$

☐ (A) $\{1\}$ ☐ (B) $\{-1, 1\}$ ☐ (C) $[-1, 1]$ ☒ (D) $\{0\}$

59) $[3, 5] - \{5\} = \dots\dots\dots$

☐ (A) $[3, 4]$ ☒ (B) $[3, 5[$ ☐ (C) $\{3, 4\}$ ☐ (D) $]3, 5]$

60) $[2, 5] - \{2, 5\} = \dots\dots\dots$

☐ (A) $\{2, 5\}$ ☐ (B) $[2, 5[$ ☒ (C) $]2, 5[$ ☐ (D) $\emptyset$

61) $[1, 3] - \{1, 3\} = \dots\dots\dots$

☒ (A) $]1, 3[$ ☐ (B) $[1, 3[$ ☐ (C) $] - 3, -1[$ ☐ (D) $] - 1, 3]$

62) $\{3, 4, 5\} -]3, 5[= \dots\dots\dots$

☐ (A) $\emptyset$ ☒ (B) $\{3, 5\}$ ☐ (C) $[3, 5]$ ☐ (D) $\{4\}$

63) What is the sum of all real numbers in the interval $[-25, 25]$?

☐ (A) -25 ☐ (B) 25 ☒ (C) 0 ☐ (D) 50

64) What is the sum of all real numbers in the interval $] - 25, 25[$?

☐ (A) -25 ☐ (B) 25 ☒ (C) 0 ☐ (D) 50

65) What is the sum of all real numbers in the interval $[-25, 25[$?

☒ (A) -25

☐ (B) 25

☐ (C) 0

☐ (D) 50

66) What is the sum of all real numbers in the interval $] - 25, 25]$?

☐ (A) -25

☒ (B) 25

☐ (C) 0

☐ (D) 50

67) If $x \in [-3, 4]$, then $x^2 \in \dots\dots\dots$

☐ (A) $[9, 16]$

☐ (B) $[0, 9]$

☒ (C) $[0, 16]$

☐ (D) $[-9, 0]$

68) If $x \in [-5, 4]$, then $x^2 \in \dots\dots\dots$

☐ (A) $[0, 16]$

☐ (B) $[16, 25]$

☒ (C) $[0, 25]$

☐ (D) $[-5, 0]$

69) If $X =] - \infty, 3[$, then $X' = \dots\dots\dots$

☐ (A) $]3, \infty[$

☐ (B) $[0, 3[$

☒ (C) $[3, \infty[$

☐ (D) $] - \infty, 0[$

70) What is the value of $\sqrt{5} + \sqrt{5}$?

☐ (A) $\sqrt{10}$

☒ (B) $\sqrt{20}$

☐ (C) 5

☐ (D) 10

71) $2\sqrt{7} - 3\sqrt{3} + \sqrt{7} + 2\sqrt{3} = \dots\dots\dots$

☐ (A) $\sqrt{7} - 5\sqrt{3}$

☐ (B) $3\sqrt{7} + 5\sqrt{3}$

☐ (C) $3\sqrt{7} + \sqrt{3}$

☒ (D) $3\sqrt{7} - \sqrt{3}$

72) $5 + 7\sqrt{2} - 4 + \sqrt{2} = \dots\dots\dots$

☐ (A) 15

☐ (B) $1 + 7\sqrt{2}$

☒ (C) $1 + 8\sqrt{2}$

☐ (D) $1 + 6\sqrt{2}$

73) What is the value of $\frac{\sqrt{63}}{\sqrt{7}}$?

☒ (A) 3

☐ (B) $\sqrt{3}$

☐ (C) 9

☐ (D) ± 3

74) What is the additive inverse of the number $\frac{7}{\sqrt{7}}$ in the simplest form?

☐ (A) $\frac{\sqrt{7}}{7}$

☐ (B) 7

☒ (C) $-\sqrt{7}$

☐ (D) -7

75) What is the additive inverse of the number $3\sqrt{7} - 4$ is $\dots\dots\dots$

☐ (A) $-3\sqrt{7} - 4$

☒ (B) $4 - 3\sqrt{7}$

☐ (C) $3\sqrt{7} + 4$

☐ (D) $-4 + 3\sqrt{7}$

76) If $a + \sqrt{5} = 0$, what is the value of a ?

☐ (A) 0

☐ (B) $\sqrt{5}$

☒ (C) $-\sqrt{5}$

☐ (D) $\frac{1}{\sqrt{5}}$

77) What is the multiplicative inverse of the number $\sqrt{5}$?

- (A) -5 (B) $\frac{-1}{5}$ (C) $\frac{5}{\sqrt{5}}$ (D) $\frac{\sqrt{5}}{5}$

78) What is the multiplicative inverse of the number $\sqrt{3} - 2$?

- (A) $2 - \sqrt{3}$ (B) $\sqrt{3} + 2$ (C) $-\sqrt{3} - 2$ (D) $\sqrt{3} - 2$

79) What is the multiplicative inverse of the number $\frac{2\sqrt{3}}{5}$?

- (A) $\frac{5}{\sqrt{3}}$ (B) $\frac{6}{5\sqrt{3}}$ (C) $\frac{6}{\sqrt{3}}$ (D) $\frac{5\sqrt{3}}{6}$

80) If $a \times \sqrt{2} = 1$, what is the value of a ?

- (A) 1 (B) $\sqrt{2}$ (C) $-\sqrt{2}$ (D) $\frac{\sqrt{2}}{2}$

81) $\sqrt{6} \times (\sqrt{6})^x = 1$, what is the value of x ?

- (A) 0 (B) 1 (C) -1 (D) -2

82) $x^{m-1} \times \dots = 1, x \neq 0$

- (A) x^{m-1} (B) x^{-m-1} (C) x^{-m+1} (D) $x^{-m \pm 1}$

83) If $a\sqrt{5} - 4\sqrt{5} = 3\sqrt{5}$, then

- (A) $a = -1$ (B) $a = 1$ (C) $a = 7$ (D) $a = 10$

84) If $\sqrt[3]{5} + 3a = 4\sqrt[3]{5}$, then

- (A) $a = 1$ (B) $a = \sqrt{5}$ (C) $a = \sqrt[3]{5}$ (D) $a = 5$

85) If $x = \sqrt{2} + 10$, $y = \sqrt{2} - 10$, what is the value of $(x + y)^2$?

- (A) 4 (B) 6 (C) 8 (D) $4\sqrt{2}$

86) If $\frac{x}{3\sqrt{2}} = \frac{y}{2\sqrt{5}} = 1$, then the value of $x^2 + y^2 = \dots$

- (A) 36 (B) 38 (C) 42 (D) 45

87) The area of the rectangle with dimensions $(\sqrt{7} + 1)cm$ and $(\sqrt{7} - 1)cm$ is cm^2

- (A) 8 (B) 7 (C) 6 (D) $2\sqrt{7}$

88) $\sqrt{48} = \dots$

- (A) $3\sqrt{2}$ (B) $4\sqrt{3}$ (C) $2\sqrt{6}$ (D) $6\sqrt{2}$

89) $4\sqrt{\frac{1}{2}} = \dots\dots\dots$

☒ (A) $2\sqrt{2}$

☐ (B) $\frac{1}{2}\sqrt{2}$

☐ (C) 2

☐ (D) $\sqrt{2}$

90) $5\sqrt[3]{\frac{1}{5}} = \dots\dots\dots$

☐ (A) $\sqrt[3]{5}$

☐ (B) 5

☒ (C) $\sqrt[3]{25}$

☐ (D) $\sqrt{5}$

91) If $\sqrt{160} = x\sqrt{10}$, what is the value of x ?

☐ (A) 8

☐ (B) 6

☒ (C) 4

☐ (D) 3

92) If $a\sqrt[3]{2} = \sqrt[3]{3} \times \sqrt[3]{10}$, what is the value of a ?

☐ (A) 30

☐ (B) $\sqrt[3]{30}$

☐ (C) 15

☒ (D) $\sqrt[3]{15}$

93) If $2\sqrt{3} \times 4a = 8\sqrt{6}$, what is the value of a ?

☒ (A) $\sqrt{2}$

☐ (B) $\sqrt{3}$

☐ (C) 2

☐ (D) $\sqrt{6}$

94) If $2\sqrt{27} - 2\sqrt{48} = x\sqrt{3}$, what is the value of x ?

☐ (A) 2

☒ (B) -2

☐ (C) 0

☐ (D) 3

95) If $x + \sqrt{28} = \sqrt{7}$, what is the value of x ?

☐ (A) $\sqrt{21}$

☐ (B) $-\sqrt{21}$

☐ (C) $\sqrt{7}$

☒ (D) $-\sqrt{7}$

96) If $\frac{\sqrt{3}}{\sqrt{a}} = \frac{\sqrt{2}}{\sqrt{6}}$, what is the value of a ?

☐ (A) $\sqrt{3}$

☐ (B) $\sqrt{6}$

☐ (C) 3

☒ (D) 9

97) The next number in the pattern: $\sqrt{5}, \sqrt{20}, \sqrt{45}, \sqrt{80}, \dots$ is

☐ (A) $2\sqrt{5}$

☐ (B) $\sqrt{100}$

☐ (C) $\sqrt{120}$

☒ (D) $5\sqrt{5}$

98) The next number in the pattern: $\sqrt{3}, \sqrt{12}, \sqrt{27}, \sqrt{48}, \dots$ is

☐ (A) $\sqrt{72}$

☒ (B) $\sqrt{75}$

☐ (C) $\sqrt{54}$

☐ (D) $\sqrt{80}$

99) What is the value of $5^2 + 5^2 = \dots\dots\dots$

☐ (A) 10^2

☐ (B) 10^4

☐ (C) 5^4

☒ (D) 50

100) What is the value of $4^2 + 4^2 + 4^2 + 4^2$?

☐ (A) 4^2

☒ (B) 4^3

☐ (C) 4^8

☐ (D) 4^{16}

101) What is the result of $\frac{(ab)^3}{b^3}$?

☒ (A) a^3

☐ (B) $\frac{a}{b}$

☐ (C) $\frac{a^3}{b^2}$

☐ (D) $\frac{a^2}{b^3}$

102) What is the four times of the number 2^8 ?

☐ (A) 2^{32}

☐ (B) 8^8

☒ (C) 2^{10}

☐ (D) 4^8

103) What is the quarter of the number 4^{20} ?

☐ (A) 1^{10}

☒ (B) 4^{19}

☐ (C) 4^{16}

☐ (D) 4^5

104) Half of the number 2^{10} is

☐ (A) 2^5

☐ (B) 2^{10}

☒ (C) 2^9

☐ (D) 2^{11}

105) If $2^x = 3$, what is the value of 2^{x+1} ?

☐ (A) 4

☐ (B) 5

☒ (C) 6

☐ (D) 9

106) If $(x - 3)^0 = 1$, then $x \in$

☒ (A) $\mathbb{R} - \{3\}$

☐ (B) $\mathbb{R}$

☐ (C) $\{3\}$

☐ (D) $\mathbb{R} - \{-3\}$

107) What is the perimeter of the square whose area is $a \text{ cm}^2$?

☐ (A) $a^4 \text{ cm}$

☐ (B) $(\sqrt{a})^4 \text{ cm}$

☒ (C) $4\sqrt{a} \text{ cm}$

☐ (D) $a \text{ 4 cm}$

108) $6a - 8b =$

☐ (A) $6(a - 2b)$

☐ (B) $4(2a - 4b)$

☒ (C) $2(3a - 4b)$

☐ (D) $14(a - b)$

109) Which of the following expresses the arithmetic mean of the two numbers 2^{x+1} and 2^x where $x \in \mathbb{Z}$?

☐ (A) 2

☐ (B) 2^{2x+1}

☒ (C) $2^{x-1} + 2^x$

☐ (D) $2^{x+1} + 2^x$

110) What is the greatest common factor between the terms of the polynomial $12x^2 - 8x$?

☐ (A) 2

☐ (B) 4

☐ (C) $2x$

☒ (D) $4x$

111) Which of the following represents the factorization of the polynomial $16x^2 - 24x^3$ by taking out GCF?

☒ (A) $8x(2x - 3x^2)$

☐ (B) $4x^2(4 - 6x)$

☐ (C) $8x^2(2 - 3x)$

☐ (D) $8(2x^2 - 3x^3)$

112) $x(a + b) + y(a + b) =$

☐ (A) $(x - y)(a - b)$

☒ (B) $(x + y)(a + b)$

☐ (C) $(x - y)(a + b)$

☐ (D) $(x + y)(a - b)$

113) $x + 2y = 7$, then what is the value of $2x + 4y$?

(A) 14

(B) 28

(C) 18

(D) 56

114) $n - 5m = 10$, then what is the value of $10m - 2n$?

(A) 100

(B) -100

(C) 20

(D) -20

115) $3x + 3y = 18$, then what is the value of $x + y$?

(A) 54

(B) 15

(C) 6

(D) 2

116) $x^2(3a - b) - y(b - 3a) = (3a - b)(\dots\dots\dots)$

(A) $x^2 + y$

(B) $x^2 - y$

(C) $y - x^2$

(D) $y^2 - x$

117) If $x + y = 10$, $a - b = 7$, then $x(a - b) - y(b - a) = \dots\dots\dots$

(A) 3

(B) 17

(C) 51

(D) 70

2

Answer the following questions

1) Simplify to the simplest form:

a) $\sqrt{5} - \sqrt{3} + 2\sqrt{5} + \sqrt{3}$

$3\sqrt{5}$

b) $\sqrt{50} + \sqrt{8}$

$\sqrt{2 \times 25} + \sqrt{2 \times 4} =$

$5\sqrt{2} + 2\sqrt{2} = 7\sqrt{2}$

c) $\frac{1}{3}\sqrt{162} + \sqrt{72} - \sqrt{18} - \sqrt{50}$

$\frac{1}{3}\sqrt{2 \times 81} + \sqrt{2 \times 36} - \sqrt{2 \times 9} - \sqrt{2 \times 25}$
 $\frac{1}{3} \times 9\sqrt{2} + 6\sqrt{2} - 3\sqrt{2} - 5\sqrt{2} = \sqrt{2}$

d) $\frac{(10)^{2n \times 0.001}}{(10)^{-n+1} \times 100}$ and find the value of the result when $n = 2$

$\frac{(10)^{2n} \times (10)^{-3}}{(10)^{-n+1} \times (10)^2} = 10^{2n+(-3)+n-1-2} = 10^{3n-6}$
 $= 10^{3 \times 2 - 6} = 10^0 = 1$

e) $\frac{(\sqrt{7})^{-4} \times (\sqrt{7})^{-3}}{(\sqrt{7})^{-9}}$

$$(\sqrt{7})^{-4+(-3)-(-9)} = (\sqrt{7})^2 = 7$$

f) $\frac{(\sqrt{6})^{n+2} \times (\sqrt{3})^n}{4 \times (\sqrt{2})^{n-2}}$

$$\frac{(\sqrt{2} \times \sqrt{3})^{n+2} \times (\sqrt{3})^n}{4 \times (\sqrt{2})^{n-2}} = \frac{(\sqrt{2})^{n+2} \times (\sqrt{3})^{n+2} \times (\sqrt{3})^n}{4 \times (\sqrt{2})^{n-2}}$$

$$= \frac{1}{4} \times (\sqrt{2})^{n+2-n+2} \times (\sqrt{3})^{2n+2}$$

g) $(\sqrt{5} - 2)^2 + (\sqrt{5} + 3)(\sqrt{5} - 2)$

$$(\sqrt{5})^2 - 2 \times 2 \times \sqrt{5} + 2^2 + \sqrt{5} \times \sqrt{5} - 2 \times 2$$

$$5 - 4\sqrt{5} + 4 + 5 - 4 = 10 - 4\sqrt{5}$$

2) If $3^x = 7$, find the value of each of:

a) 3^{x-2}

b) 3^{x+2}

$$\boxed{a} \quad 3^{x-2} = \frac{3^x}{3^2} = \frac{7}{9} \quad \left\{ \quad \boxed{b} \quad 3^{x+2} = 3^x \times 3^2 = 7 \times 9 = 63 \right.$$

3) If $5^x = 6$, find the value of each of:

a) 5^{x+1}

b) 5^{x-2}

$$\boxed{a} \quad 5^{x+1} = 5^x \times 5^1 = 6 \times 5 = 30 \quad \left\{ \quad \boxed{b} \quad 5^{x-2} = \frac{5^x}{5^2} = \frac{6}{25} \right.$$

4) If $x = 2\sqrt{2}$, $y = 3$, find the value of the expression $x^2 - y^2$

$$(2\sqrt{2})^2 - 3^2 =$$

$$2^2 \times (\sqrt{2})^2 - 9 =$$

$$4 \times 2 - 9 = -1$$

5) If $x = \sqrt{7} - \sqrt{3}$, $y = \frac{4}{\sqrt{7} + \sqrt{3}}$ find the value of the expression $(x + y)^2$

$$y = \frac{4}{\sqrt{7} + \sqrt{3}} \times \frac{\sqrt{7} - \sqrt{3}}{\sqrt{7} - \sqrt{3}} = \frac{4(\sqrt{7} - \sqrt{3})}{7 - 3} = \frac{4(\sqrt{7} - \sqrt{3})}{4} = \sqrt{7} - \sqrt{3}$$

$$(x + y)^2 = (\sqrt{7} - \sqrt{3} + \sqrt{7} - \sqrt{3})^2 = (2\sqrt{7})^2 = 28$$

6) If $a = \sqrt{3} + \sqrt{2}$, $b = \frac{1}{\sqrt{3} + \sqrt{2}}$ Find $(a - b)^2$

$$b = \frac{1}{\sqrt{3} + \sqrt{2}} \times \frac{\sqrt{3} - \sqrt{2}}{\sqrt{3} - \sqrt{2}} = \frac{\sqrt{3} - \sqrt{2}}{3 - 2} = \sqrt{3} - \sqrt{2}$$

$$(a - b)^2 = (\sqrt{3} + \sqrt{2} - \sqrt{3} + \sqrt{2})^2 = (2\sqrt{2})^2 = 8$$

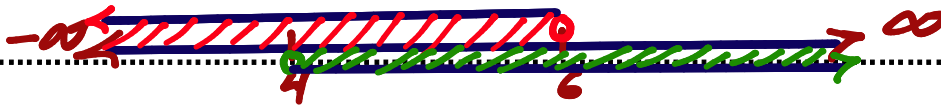
7) If $x = \sqrt{7} + 2$, $y = \frac{3}{x}$ find the value of the expression $(x + y)^2$

$$y = \frac{3}{x} = \frac{3}{\sqrt{7} + 2} \times \frac{\sqrt{7} - 2}{\sqrt{7} - 2} = \frac{3(\sqrt{7} - 2)}{7 - 4} = \frac{3(\sqrt{7} - 2)}{3} = \sqrt{7} - 2$$

$$(x + y)^2 = (\sqrt{7} + 2 + \sqrt{7} - 2)^2 = (2\sqrt{7})^2 = 28$$

8) Find using the number line:

a) $] -\infty, 6[\cup] 4, \infty[=] -\infty, 4]$



b) $[-1, 4] \cup [2, 5] = [-1, 5]$

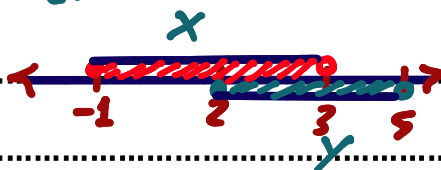


9) If $X = [-1, 3[$, $Y = [2, 5[$, find using the number line:

a) $X \cup Y = [-1, 5[$

b) $X \cap Y = [2, 3[$

c) $Y - X = [3, 5[$



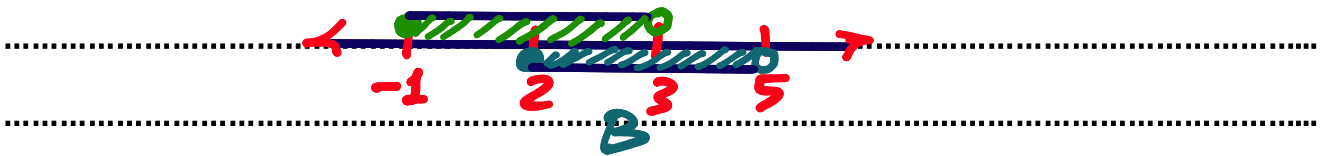
10) If $A = [-1, 3[$, $B = [2, 5[$, find using the number line:

d) $A \cup B = [-1, 5[$

e) $A \cap B = [2, 3[$

f) $A - B = [-1, 2[$

g) $B - A = [3, 5[$



11) Find the solution set of each of the following in $\mathbb{R}$:

a) $2x^2 - 3 = 9$

$$\begin{aligned} 2x^2 &= 9 + 3 \\ \frac{2x^2}{2} &= \frac{12}{2} \end{aligned} \quad \left\{ \begin{aligned} x^2 &= 6 \\ x &= \pm\sqrt{6} \end{aligned} \right. \quad \text{the s.s.} = \{\pm\sqrt{6}\}$$

b) $x^2 - 11 = 5$

$$\begin{aligned} x^2 &= 5 + 11 \\ x^2 &= 16 \end{aligned} \quad \left\{ \begin{aligned} x &= \pm\sqrt{16} \\ x &= \pm 4 \end{aligned} \right. \quad \text{the s.s.} = \{\pm 4\}$$

c) $x^2 - x = 0$

$$\begin{aligned} x(x-1) &= 0 \\ x=0 \quad \left\{ \begin{aligned} x-1 &= 0 \\ x &= 1 \end{aligned} \right. \end{aligned} \quad \text{the S.S.} = \{0, 1\}$$

12) Make the denominator of the number $\frac{6}{\sqrt{6}}$ an integer.

$$\frac{6}{\sqrt{6}} \times \frac{\sqrt{6}}{\sqrt{6}} = \frac{6\sqrt{6}}{6} = \sqrt{6}$$

13) The dimensions of the rectangle are $(6 + \sqrt{5})\text{cm}$ and $(6 - \sqrt{5})\text{cm}$, calculate the area.

$$A = L \times w$$

$$= (6 + \sqrt{5})(6 - \sqrt{5}) = 36 - 5 = 31\text{cm}^2$$

- 14) If the total area of a cube is 240 cm^2 , then find the length of its edge to the nearest centimeter.

$$T.A = 6S^2 \rightarrow 6S^2 = 240$$

$$S^2 = 40$$

$$S = \sqrt{40} = 2\sqrt{10} \approx 6 \text{ cm}$$

- 15) A square with side length of $5\sqrt{2} \text{ cm}$, find its area.

$$A = S^2$$

$$A = (5\sqrt{2})^2 = 25 \times 2 = 50 \text{ cm}^2$$

- 16) A square with side length of 8 cm , find the length of diagonal.

$$A = S^2$$

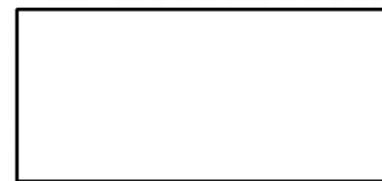
$$A = 8^2 = 64 \text{ cm}^2$$

$$d = \sqrt{2A}$$

$$d = \sqrt{2 \times 64}$$

$$d = \sqrt{128} = 8\sqrt{2} \text{ cm}$$

- 17) Find the area of the opposite rectangle.



$(2\sqrt{5} - \sqrt{3}) \text{ cm}$

$(2\sqrt{5} + \sqrt{3}) \text{ cm}$

$$A = L \times W$$

$$= (2\sqrt{5} + \sqrt{3})(2\sqrt{5} - \sqrt{3})$$

$$= 20 - 3 = 17 \text{ cm}^2$$

- 18) factorization by taking the greatest common factor: $a(b+5) + 2(b+5)$

$$(b+5)(a+2)$$

- 19) Find the value of the following using factorization by taking the greatest common factor: $11 \times 123 + 11 \times 35 - 11 \times 58$

$$11[123 + 35 - 58] =$$

$$11 \times 100 = 1100$$

حمل الآن

مجاناً وحصرياً

المراجعة رقم (4)

اختبار شهر اكتوبر



Home Performance Week 1

Q1 Complete using $\in$ Or $\notin$:-

a) $0.\bar{5}$ $\mathbb{Q}$

b) $\sqrt{-2}$ $\mathbb{R}$

c) $\sqrt[3]{8}$ $\mathbb{R}$

d) $\sqrt{5}$ $\mathbb{Z}$

Q2 Find the solution set in $\mathbb{R}$:-

1) $2X^2 - 1 = 49$

2) $X^2 - 5 = 2$

3) $3X^3 + 7 = 31$

4) $X^3 - 11 = 28$

Solution Q1

a) $\in$

b) $\notin$

c) $\in$

d) $\notin$

Solution Q2

1) $2X^2 - 1 = 49$

$$2X^2 = 49 + 1$$

$$2X^2 = 50$$

$$X^2 = 50 \div 2 = 25$$

$$X = \pm \sqrt{25} \quad \text{S.S} = \{-5, 5\}$$

$$2) X^2 - 5 = 2$$

$$X^2 = 2 + 5 = 7$$

$$X = \pm \sqrt{7}$$

$$\text{S.S} = \{-\sqrt{7}, \sqrt{7}\}$$

$$3) 3X^3 + 7 = 31$$

$$3X^3 = 31 - 7$$

$$3X^3 = 24$$

$$X^3 = 24 \div 3 = 8$$

$$X = \sqrt[3]{8} = 2$$

$$\text{S.S} = \{2\}$$

$$4) X^3 - 11 = 28$$

$$X^3 = 28 + 11 = 39$$

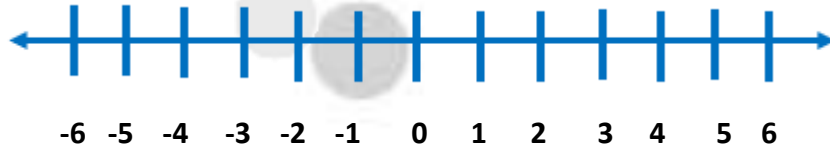
$$X = \sqrt[3]{39}$$

$$\text{S.S} = \{\sqrt[3]{39}\}$$

Home Performance Week 2

1) Using the opposite number line represent the two intervals

$X =]-\infty, 4[$, $Y =]2, \infty[$, then find $X \cap Y$



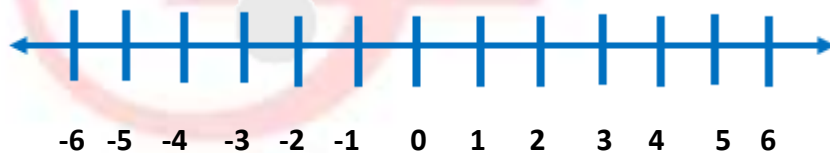
2) Using the opposite number line represent the two intervals

$X = [2, 6]$, $Y =]1, 3]$, then find $X \cup Y$



3) Using the opposite number line represent the two intervals

$X = [2, 6]$, $Y =]0, 5]$, then find $X - Y$

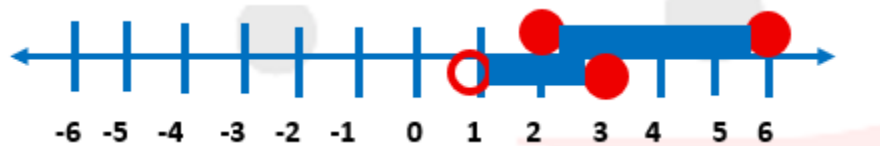


Solution

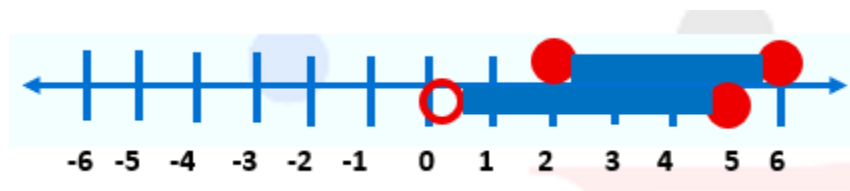
1) $X \cap Y =]2, 4[$



$$2) X \cup Y =]1, 6]$$



$$3) X - Y =]5, 6]$$



Assessment week 2

Group A

Q1 Choose the correct answer :-

1) Which of the following numbers is an irrational number ?

- a) $0.\bar{5}$ b) $\sqrt{7}$ c) $\sqrt{\frac{9}{25}}$ d) $\sqrt[3]{8}$

1) The interval which represent $]2, 5[\cup \{2, 5\}$ is

- a) $[2, 5]$ b) $]2, 5[$ c) $[2, 5]$ d) $[2, 5[$

Q2 Answer the following :-

1) Using the number line represent the two intervals $X = [3, 4]$, $Y =]1, 3]$

then find $X \cup Y$

2) Using the number line represent the two intervals $X = [3, 6]$, $Y =]1, 3]$

then find $X \cap Y$

3) Find in $\mathbb{R}$ the solution set of the equation $X^2 - 8 = 3$

Group B

Q1 Choose the correct answer :-

1) Which of the following numbers is an irrational number ?

- a) $0.\bar{3}$ b) $\sqrt[3]{8}$ c) $\sqrt{\frac{9}{25}}$ d) $\sqrt{5}$

1) The interval which represent $]1, 2[\cup \{1, 2\}$ is

- a) $[1, 2]$ b) $]1, 2[$ c) $[1, 2]$ d) $[1, 2[$

Q2 Answer the following :-

1) Using the number line represent the two intervals $X = [3, 5]$, $Y =]2, 3]$

then find $X \cup Y$

2) Using the number line represent the two intervals $X = [7, 9]$, $Y =]1, 7]$

then find $X \cap Y$

3) Find in $\mathbb{R}$ the solution set of the equation $X^2 - 3 = 4$

Group C

Q1 Choose the correct answer :-

1) Which of the following numbers is an irrational number ?

- a) $0.\bar{5}$ b) $\sqrt{5}$ c) $\sqrt[3]{8}$ d) $\sqrt{\frac{9}{25}}$

1) The interval which represent $]3, 4[\cup \{3, 4\}$ is

- a) $[3, 4]$ b) $]3, 4[$ c) $[3, 4]$ d) $[3, 4[$

Q2 Answer the following :-

1) Using the number line represent the two intervals $X = [5, 7]$, $Y =]4, 5]$

then find $X \cup Y$

2) Using the number line represent the two intervals $X = [8, 9]$, $Y =]1, 8]$

then find $X \cap Y$

3) Find in $\mathbb{R}$ the solution set of the equation $X^2 - 8 = 5$

Group A

Solution / first

1) $\sqrt{7}$ 2) $[2, 5]$

Solution / second

1) $X \cup Y =]1, 4]$

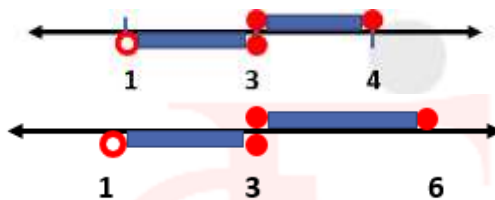
2) $X \cap Y = \{3\}$

3) $X^2 - 8 = 3$

$$X^2 = 3 + 8 = 11$$

$$X = \pm\sqrt{11}$$

$$\text{S.S} = \{-\sqrt{11}, \sqrt{11}\}$$

For more steps
watch 

Group B

Solution / first

1) $\sqrt{5}$ 2) $[1, 2]$

Solution / second

1) $X \cup Y =]2, 5]$

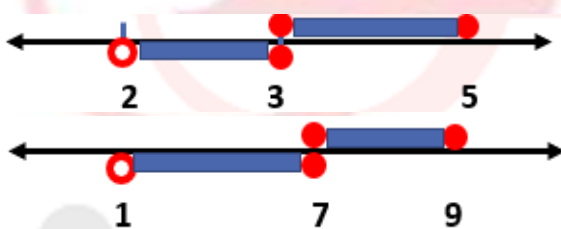
2) $X \cap Y = \{7\}$

3) $X^2 - 3 = 4$

$$X^2 = 4 + 3 = 7$$

$$X = \pm\sqrt{7}$$

$$\text{S.S} = \{-\sqrt{7}, \sqrt{7}\}$$



Solution / first

1) $\sqrt{3}$ 2) $[3, 4]$

Solution / second

1) $X \cup Y =]4, 7]$

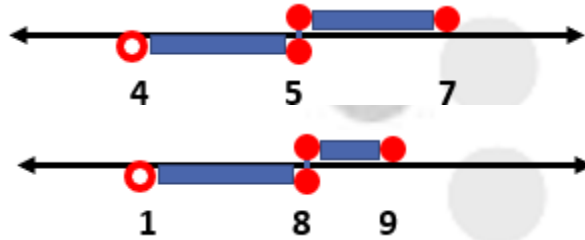
2) $X \cap Y = \{8\}$

3) $X^2 - 8 = 5$

$$X^2 = 5 + 8 = 13$$

$$X = \pm\sqrt{13}$$

$$\text{S.S} = \{-\sqrt{13}, \sqrt{13}\}$$



Home Performance Week 3

1-Find in the simplest form :-

$$1) (\sqrt{8} - 3)(\sqrt{8} + 3) = 8 - 9 = -1$$

$$2) (\sqrt{5} - 1)^2 + (\sqrt{5} - 2)(\sqrt{5} + 2) = 7 - 2\sqrt{5}$$

$$3) (\sqrt{3} - 2)^2 = 7 - 4\sqrt{3}$$

For more steps
watch 

2-Make the denominator an integer :-

$$1) \frac{10}{2\sqrt{5}} = \sqrt{5}$$

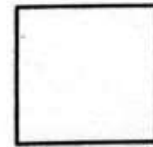
$$2) \frac{10}{5-\sqrt{15}} = 5 + \sqrt{15}$$

3-Find the area of the opposite square

(The area of square whose side x is x^2)

$$(2\sqrt{5})^2 = 20 \text{ cm}$$

$2\sqrt{5} \text{ cm}$



Assessment Week 3

Model A

Q1 Choose the correct answer :-

$$1) \text{ If } \frac{x}{3\sqrt{2}} = \frac{y}{2\sqrt{5}} = 1, \text{ then } x^2 + y^2 = \dots\dots\dots$$

- a) 36 **b) 38** c) 42 d) 45

$$2) \text{ If } a\sqrt{3} - 3\sqrt{3} = 5\sqrt{3}$$

- a) 7 **b) 8** c) 9 d) 10

Q2 Answer the following :-

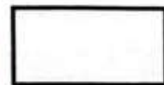
1) Find $(\sqrt{5} - 2)^2 + (\sqrt{5} + 3)(\sqrt{5} - 2)$ in the simplest form .

$$= 8 - 3\sqrt{5}$$

2) Make the denominator in the number $\frac{6}{\sqrt{3}}$ an integer

$$2\sqrt{3}$$

$$3\sqrt{5} + 2 \text{ cm}$$



$$3\sqrt{5} - 2 \text{ cm}$$

3) Find the area of the opposite rectangle .

$$(3\sqrt{5} + 2)(3\sqrt{5} - 2) = 41 \text{ cm}^2$$

Model B

Q1 Choose the correct answer :-

1) If $\frac{x}{2\sqrt{2}} = \frac{y}{2\sqrt{3}} = 1$, then $x^2 + y^2 = \dots\dots\dots$

a) 24

b) 20

c) 36

d) 40

2) If $a\sqrt{3} + 3\sqrt{3} = 5\sqrt{3}$

a) 1

b) 2

c) 9

d) 10

For more steps
watch 

Q2 Answer the following :-

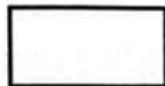
1) Find $(\sqrt{7} - 2)^2 + (\sqrt{7} + 3)(\sqrt{7} - 1)$ in the simplest form .

$$15 - 2\sqrt{7}$$

2) Make the denominator in the number $\frac{12}{\sqrt{3}}$ an integer

$$4\sqrt{3}$$

$$3\sqrt{2} + 2 \text{ cm}$$



$$3\sqrt{2} - 2 \text{ cm}$$

3) Find the area of the opposite rectangle .

$$(3\sqrt{2} + 2)(3\sqrt{2} - 2) = 14 \text{ cm}^2$$



Model C

Q1 Choose the correct answer :-

1) If $\frac{x}{2\sqrt{2}} = \frac{y}{2\sqrt{5}} = 1$, then $x^2 + y^2 = \dots\dots\dots$

- a) 28 b) 9 c) 10 d) 11

2) If $a\sqrt{3} + 3\sqrt{3} = 7\sqrt{3}$

- a) 1 b) 2 c) 3 d) 4

For more steps
watch 

Q2 Answer the following :-

1) Find $(\sqrt{3} - 2)^2 + (\sqrt{3} + 3)(\sqrt{3} - 2)$ in the simplest form .

$$4 - 3\sqrt{3}$$

2) Make the denominator in the number $\frac{24}{\sqrt{3}}$ an integer

$$8\sqrt{3}$$

3) Find the area of the opposite rectangle .

$$(3\sqrt{3} + 2)(3\sqrt{3} - 2) = 23 \text{ cm}^2$$

Home Performance Week 4

1) Answer the following :-

1) Find in the simplest form :

a) $\sqrt{27} = 3\sqrt{3}$

b) $\sqrt{8} = 2\sqrt{2}$

c) $3\sqrt[3]{16} = 6\sqrt[3]{2}$

d) $4\sqrt{\frac{1}{2}} = 2\sqrt{2}$

2) Find in the simplest form ; $\sqrt{108} - \sqrt{48} + 2\sqrt{27} + \sqrt{75}$

$$6\sqrt{3} - 4\sqrt{3} + 6\sqrt{3} + 5\sqrt{3} = 13\sqrt{3}$$

3) Find in the simplest form ; $\sqrt[3]{24} - \sqrt[3]{81} + 5\sqrt[3]{3}$

$$2\sqrt[3]{3} + 3\sqrt[3]{3} - 5\sqrt[3]{3} = 0$$

4) If the perimeter of a rectangle is $\sqrt{300} m$, its length is $\sqrt{27} m$, find its width.

$$2 \times (L + W) = \text{perimeter}$$

$$2 \times (L + \sqrt{27}) = \sqrt{300}$$

$$(L + \sqrt{27}) = \sqrt{300} \div 2$$

$$L + \sqrt{27} = 5\sqrt{3}$$

$$L = 5\sqrt{3} - \sqrt{27} = 2\sqrt{3} m$$

For more steps
watch 5) The area of square is $144 m^2$, find its diagonal .

$$\text{Area of square} = \frac{1}{2} d^2$$

$$144 = \frac{1}{2} d^2$$

$$d^2 = 144 \div \frac{1}{2}$$

$$d^2 = 288$$

$$d = \sqrt{288} = 12\sqrt{2} m$$

2) Answer the following :-

1) Find in the simplest form : $\frac{36^n \times 5^{2n}}{30^{2n}}$

$$\frac{6^n \times 6^n \times 5^{2n}}{6^{2n} \times 5^{2n}} = 5^{2n-2n} \times 6^{2n-2n}$$

$$6^0 \times 6^0 = 1$$

2) find the value of $(\frac{3\sqrt{2}}{2\sqrt{3}})^4 = \frac{9}{4}$

3) If $b = \frac{a}{2}$, $a = \sqrt{8}$, find the value of

$$a^3 + b^5 = 20\sqrt{2} , \quad (ab)^3 = 64$$

4) If $3^x = 5$, find the value of $3^{x+1} = 15$

5) Find in the simplest form : $\frac{8^x \times 9^x}{18^x} = 4^x$

, then find the value if $x = 2$ value = 16

Assessment Week 4

Model A

Q1 Choose the correct answer :-

1) $\sqrt[3]{2} + \sqrt[3]{2} = \dots\dots\dots$

a) $\sqrt[3]{2}$

b) $\sqrt[3]{4}$

c) $\sqrt[3]{8}$

d) $\sqrt[3]{16}$

2) $(\sqrt{5} + \sqrt{2})(\sqrt{5} - \sqrt{2}) = \dots\dots\dots$

a) 2

b) 3

c) 6

d) 7

Q2 Answer the following :-

1) If $X = (\sqrt{2} - 2)$, $Y = (\sqrt{2} + 2)$, find in the simplest form ;

a) $XY = -2$

b) $X + Y = 2\sqrt{2}$

2) Find in the simplest form $\sqrt[3]{-16} - \sqrt{28} + \sqrt[3]{54} - \frac{14}{\sqrt{7}} = \sqrt[3]{2} - 4\sqrt{7}$

3) Find in the simplest form $\frac{(\sqrt{3})^6 \times (\sqrt{3})^4}{(\sqrt{3})^5 \times (\sqrt{3})^3} = 3$

For more steps
watch 

Model B

Q1 Choose the correct answer :-

1) $\sqrt[3]{3} + \sqrt[3]{3} = \dots\dots\dots$

a) $\sqrt[3]{24}$

b) $\sqrt[3]{12}$

c) $\sqrt[3]{3}$

d) $\sqrt[3]{6}$

2) $(\sqrt{15} + \sqrt{12})(\sqrt{15} - \sqrt{12}) = \dots\dots\dots$

a) 2

b) 3

c) 6

d) 7



For more steps
watch 

Q2 Answer the following :-

1) If $X = (\sqrt{5} - 2)$, $Y = (\sqrt{5} + 2)$, find in the simplest form ;

a) $XY = 1$

b) $X + Y = 2\sqrt{5}$

2) Find in the simplest form $\sqrt{18} + \sqrt[3]{54} - \sqrt{\frac{216}{12}} - \sqrt[3]{16} = \sqrt[3]{2}$

3) Find in the simplest form $\frac{(\sqrt{5})^5 \times (\sqrt{5})^8}{(\sqrt{5})^4 \times (\sqrt{5})^5} = 25$

Model C

Q1 Choose the correct answer :-

1) $\sqrt[3]{5} + \sqrt[3]{5} = \dots\dots\dots$

a) $\sqrt[3]{40}$

b) $\sqrt[3]{25}$

c) $\sqrt[3]{5}$

d) $\sqrt[3]{10}$

2) $(\sqrt{7} + \sqrt{4})(\sqrt{7} - \sqrt{4}) = \dots\dots\dots$

a) 2

b) 3

c) 6

d) 7

Q2 Answer the following :-

1) If $X = (\sqrt{3} - 5)$, $Y = (\sqrt{3} + 5)$, find in the simplest form ;

a) $XY = -22$

b) $X + Y = 3\sqrt{2}$

2) Find in the simplest form $5\sqrt{2} + \frac{-1}{2}\sqrt{200} - (\sqrt[3]{25} \times \sqrt[3]{5}) = -5$

3) Find in the simplest form $\frac{(\sqrt{7})^6 \times (\sqrt{7})^2}{(\sqrt{7})^3 \times \sqrt{7}} = 49$

Home Performance Week 5

Answer the following :-

1) Factorize the following polynomials by taking out the greatest common factor (GCF) :-

a) $15 X^3 + 5 X^5 = 5 X^3 (3 + X^2)$

b) $9 X^2 + 6 XY = 3 X (3X + 2Y)$

c) $8 m^3 - 12 m^2 n + 20 mn^2 = 4 m(2m^2 - 3 mn + 5n^2)$

2) Find the numerical value of each of the following using factorization by taking out the greatest common factor :-

$$6 \times \frac{5}{7} + 2 \times \frac{5}{7} - \frac{5}{7} = \frac{5}{7} (6 + 2 - 1) = \frac{5}{7} \times 7 = 5$$

3) Find the solution set of each of the following in $\mathbb{R}$:-

a) $5 Y^2 - 10 Y = 0$ S.S = $\{0, 2\}$

a) $9 K^2 + 18 K = 0$ S.S = $\{-2, 0\}$

4) If $(3a + b) = 8$, $(2a + b) = 6$, find the value of the expression

$$3a (2a + b) + b (2a + b)$$

$$(3a + b) (2a + b) = 8 \times 6 = 48$$

5) Factorize the following polynomials by taking out the greatest common factor (GCF) :-

$$(X + 4)^2 + 3 (X + 4)$$

$$(X + 4) (X + 4 + 3)$$

$$(X + 4) (X + 7)$$

Assessment Week 5

Model A

Q1 Choose the correct answer :-

1) The greatest common factor of the expression $3X^3 + 6X^2$ is

- a) $3X^2$ b) X^2 c) $6X^2$ d) 6

2) $5X^2 + 15XY = 5X (\dots + \dots)$

- a) $X + Y$ b) $3Y - X$ c) $X + 3Y$ d) $20X^3Y$

Q2 Answer the following :-

1) Factorize by taking out the greatest common factor :

a) $6X^2 - 2X^3 + 6X^4 = 2X^2 (3 - X + 3X^2)$

b) $X(X + 5) - 3(X + 5) = (X - 3)(X + 5)$

2) Find the solution set of each of the following in $\mathbb{R}$:-

a) $5Y^2 - 25Y = 0$ S.S = $\{0, 5\}$

a) $3X^2 + 18X = 0$ S.S = $\{-6, 0\}$

Model B

Q1 Choose the correct answer :-

1) The greatest common factor of the expression $12X^2 + 8X$ is

- a) 4 b) $6X^2$ **c) $4X$** d) $2X$

2) $6X^2 + 18XY = 6X (\dots + \dots)$

- a) $X + Y$ b) $3Y - X$ **c) $X + 3Y$** d) $20X^3Y$

Q2 Answer the following :-

1) Factorize by taking out the greatest common factor :

a) $5X^2 - 10X^3 + 15X^4 = 5X^2 (1 - 2X + 3X^2)$

b) $X(X + 1) + 7(X + 1) = (X + 7)(X + 1)$

2) Find the solution set of each of the following in $\mathbb{R}$:-

a) $9Y^2 - 18Y = 0$ S.S = $\{0, 2\}$

b) $2X^2 + 12X = 0$ S.S = $\{-6, 0\}$

 Model C
Q1 Choose the correct answer :-

1) The greatest common factor of the expression $9X^3 + 3X^2$ is

- a) 6 b) $6X^2$ c) X^2 **d) $3X^2$**

2) $4X^2 + 12XY = 4X (\dots + \dots)$

- a) $X + Y$ b) $3Y - X$ **c) $X + 3Y$** d) $20X^3Y$

Q2 Answer the following :-

1) Factorize by taking out the greatest common factor :

a) $4X - 12X^3 + 16X^3 = 4X (1 - 3X^2 + 4X^2)$

b) $a(a + 4) + 3(a + 4) = (a + 3)(a + 4)$

2) Find the solution set of each of the following in $\mathbb{R}$:-

a) $10Y^2 - 30Y = 0$ S.S = $\{0, 3\}$

b) $5X^2 + 15X = 0$ S.S = $\{-3, 0\}$

حمل الآن

مجاناً وحصرياً

المراجعة رقم (5)

اختبار شهر اكتوبر



Unit 1**Q1 Choose the correct answer:-**

1) $\mathbb{R} =$

- a) $\mathbb{Q} \cup \mathbb{Q}$ b) $\mathbb{Q} \cap \mathbb{Q}$ c) $\mathbb{N} \cup \mathbb{Z}$ d) $\mathbb{Z} \cup \mathbb{Q}$

2) Which of the following numbers is an irrational number ?

- a) 0.3 b) $\sqrt{\frac{9}{25}}$ c) $\sqrt{5}$ d) $\sqrt[3]{-125}$

3) If $X \in \mathbb{Z}$, $X < \sqrt{29} < X+1$, what is the value of X ?

- a) 4 b) 5 c) 6 d) 7

4) Estimating $\sqrt{41}$ to the closest integer is

- a) 6 b) 7 c) 36 d) 49

5) Estimating $\sqrt[3]{25}$ to closest integer is

- a) 2 b) 3 c) 5 d) 12.5

6) Which of the following numbers is an irrational number that lies between -1 and -2 ?

- a) -3 b) $-1\frac{1}{2}$ c) $-\sqrt{3}$ d) $\sqrt{2}$

7) The side length of a square with an area of 6 cm^2 is.....

- a) a natural number b) an integer. c) a rational number. d) an irrational number.

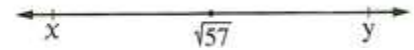
8) What is the solution set of the equation : $X^2 + 1 = 0$ in $\mathbb{R}$?

- a) $\{-1\}$ b) $\{1, -1\}$ c) $\{1\}$ d) $\emptyset$

9) If X is a negative real number, which of the following numbers is positive?

- a) X^2 b) X^3 c) $2X$ d) $\frac{x}{2}$

10) If X and Y are two consecutive integers, what is the value of $X+Y$?



- a) 11 b) 13 c) 15 d) 17

11) $R =$

- a) $R^+ \cap R^-$ b) $R^+ \cup R^-$ c) $] -\infty, \infty[$ d) $Q \cap Q'$

12) $R^+ =$

- a) $]0, \infty[$ b) $] -\infty, 0[$ c) $[0, \infty[$ d) $] -\infty, 0]$

13) $R^- =$

- a) $]0, \infty[$ b) $] -\infty, 0[$ c) $[0, \infty[$ d) $] -\infty, 0]$

14) The set of non-negative real numbers.....

- a) $]0, \infty[$ b) $] -\infty, 0[$ c) $[0, \infty[$ d) $] -\infty, 0]$

15) The set of non-positive real numbers is.....

- a) $]0, \infty[$ b) $] -\infty, 0[$ c) $[0, \infty[$ d) $] -\infty, 0]$

16) $|-4|$ $[3, \infty[$

- a) $\in$ b) $\notin$ c) $\subset$ d) $\not\subset$

17) If $a \in]2, 5[$, which of the following can be the value of a ?

- a) 1 b) 2 c) 4 d) 5

18) If $a \notin]-1, 3]$, which of the following can be the value of a ?

- a) -1 b) 0 c) 2 d) 3

19) $\sqrt[3]{-125} \dots\dots\dots]-\sqrt{25}, \sqrt{25}]$

- a) $\in$ b) $\notin$ c) $\subset$ d) $\not\subset$

20) $\mathbb{Z}^+ \dots\dots\dots]0, \infty[$

- a) $\in$ b) $\notin$ c) $\subset$ d) $\not\subset$

21) $[-3, 6] -]6, 8[= \dots\dots\dots$

- a) $\emptyset$ b) $[-3, 6]$ c) $[-3, 6[$ d) $] -3, 6[$

22) $[-4, 1] \cap [0, 1] = \dots\dots\dots$

- a) $\{1\}$ b) $] -4, 1]$ c) $[0, 1]$ d) $[0, 1[$

23) $] -\infty, 2[\cap [0, \infty [= \dots\dots\dots$

- a) $[0, 2]$ b) $[0, 2[$ c) $\mathbb{R}$ d) $\emptyset$

24) What is the interval resulting from $]2, 5[\cup \{2\}$?

- a) $]2, 5[$ b) $[2, 5]$ c) $]2, 5]$ d) $[2, 5[$

25) Which of following interval does $-\sqrt{7}$ belong to?

- a) $[-2, -1]$ b) $[-3, -2]$ c) $[-4, -3]$ d) $[-7, -6]$

26) $\mathbb{R} - \mathbb{R}^- = \dots\dots\dots$

- a) $\mathbb{R}^+$ b) $]-\infty, 0]$ c) $[0, \infty[$ d) $]-\infty, 0[$

27) What is the sum of all real number in the interval $[-75, 75]$?

- a) -75 b) 75 c) 150 d) 0

28) What is the sum of all real number in the interval $[-75, 75[$?

- a) -75 b) 75 c) 150 d) 0

29) $\{3\} \cap [3, 6] = \dots\dots\dots$

- a) $\emptyset$ b) $\{3\}$ c) $[3, 6]$ d) $\{6\}$

30) $\{8, 9, 10\} -]8, 10[= \dots\dots\dots$

- a) $\emptyset$ b) $\{8, 10\}$ c) $\{9\}$ d) $\mathbb{N}$

31) If $X \in [-3, 4]$, then $X^2 \in \dots\dots\dots$

- a) $[9, 16]$ b) $[0, 9]$ c) $[0, 16]$ d) $[-9, 0]$

32) If $a + \sqrt{5} = 0$, what is the value of a ?

- a) 0 b) $\sqrt{5}$ c) $-\sqrt{5}$ d) $\frac{1}{\sqrt{5}}$

33) If $a \times \sqrt{2} = 1$, what is the value of a ?

- a) 1 b) $\sqrt{2}$ c) $-\sqrt{2}$ d) $\frac{\sqrt{2}}{2}$

34) If $a \sqrt{5} - 4\sqrt{5} = 3\sqrt{5}$, then $\dots\dots\dots$

- a) $a = -1$ b) $a = 1$ c) $a = 7$ d) $a = 10$

35) If $(2\sqrt{3})^n = 12$, then $\dots\dots\dots$

- a) $n = 2$ b) $n = 3$ c) $n = 4$ d) $n = 6$

36) If $x = \sqrt{2} + 10$, $y = \sqrt{2} - 10$, what is the value of $(x + y)^2$?

- a) 4 b) 6 c) 8 d) $4\sqrt{2}$

37) If $\sqrt[3]{5} + 3a = 4\sqrt[3]{5}$, then

- a) $a = 1$ b) $a = \sqrt{5}$ c) $a = \sqrt[3]{5}$ d) $a = 5$

38) What is the additive inverse of the number $\frac{7}{\sqrt{7}}$ in its simplest form?

- a) $\frac{\sqrt{7}}{7}$ b) 7 c) $-\sqrt{7}$ d) -7

39) What is the multiplicative inverse of the number $\sqrt{5}$ in its simplest form?

- a) -5 b) $\frac{-1}{5}$ c) $\frac{5}{\sqrt{5}}$ d) $\frac{\sqrt{5}}{5}$

40) What is the multiplicative inverse of the number $\sqrt{3} - 2$?

- a) $2 - \sqrt{3}$ b) $\sqrt{3} + 2$ c) $-\sqrt{3} - 2$ d) $\sqrt{3} - 2$

41) If $\frac{x}{3\sqrt{2}} = \frac{y}{2\sqrt{5}} = 1$, then $x^2 + y^2 =$

- a) 36 b) 38 c) 42 d) 45

42) What is the value of: $\sqrt{18} + \sqrt{32}$?

- a) $\sqrt{50}$ b) $7\sqrt{2}$ c) $7\sqrt{4}$ d) $5\sqrt{4}$

43) What is the multiplicative inverse of the number $\sqrt{50}$?

- a) $\frac{\sqrt{2}}{10}$ b) $\frac{-\sqrt{2}}{10}$ c) $-5\sqrt{2}$ d) $5\sqrt{2}$

44) If $a\sqrt[3]{2} = \sqrt[3]{3} \times \sqrt[3]{10}$, what is the value of a ?

- a) 30 b) $\sqrt[3]{30}$ c) 15 d) $\sqrt[3]{15}$



45) If $2\sqrt{3} \times 4a = 8\sqrt{6}$, what is the value of a ?

- a) $\sqrt{2}$ b) $\sqrt{3}$ c) 2 d) $\sqrt{6}$

46) If $\frac{\sqrt{3}}{\sqrt{a}} = \frac{\sqrt{2}}{\sqrt{6}}$, what is the value of a ?

- a) $\sqrt{3}$ b) $\sqrt{6}$ c) 3 d) 9

47) If $x + \sqrt{28} = \sqrt{7}$, what is the value of x ?

- a) $\sqrt{21}$ b) $-\sqrt{21}$ c) $\sqrt{7}$ d) $-\sqrt{7}$

48) If $x = \frac{\sqrt{6}}{\sqrt{2}}$, what is the value of $\frac{1}{x}$?

- a) $\sqrt{3}$ b) $\frac{\sqrt{3}}{2}$ c) $\frac{\sqrt{3}}{3}$ d) $2\sqrt{3}$

49) What is the next number in this pattern? $\sqrt{5}, \sqrt{20}, \sqrt{45}, \sqrt{80}, \dots$

- a) $2\sqrt{5}$ b) $\sqrt{100}$ c) $\sqrt{120}$ d) $5\sqrt{5}$

50) $\sqrt[3]{3} \times \sqrt[3]{9} = \sqrt{\dots}$

- a) 27 b) 3 c) 9 d) 18

51) What is the result of $5^2 + 5^2$?

- a) 10^2 b) 10^4 c) 5^4 d) 50

52) What is the result of $3^5 \times 2^5$?

- a) 5^{10} b) 6^{10} c) 6^5 d) 6^{25}

53) What is the value of $3x^0$? where $x \neq 0$

- a) 0 b) 1 c) 3 d) $3x$



54) What is the result of $\frac{(ab)^3}{b^3}$?

a) a^3

b) $\frac{a}{b}$

c) $\frac{a^3}{b^2}$

d) $\frac{a^2}{b^3}$

55) What is the quarter of the number 4^{20} ?

a) 1^{10}

b) 4^{19}

c) 4^{16}

d) 4^5

56) What is four times the number 2^8 ?

a) 2^{32}

b) 8^8

c) 2^{10}

d) 4^8

57) What is the sixth of the number $2^{12} \times 3^{12}$?

a) 6^2

b) 6^4

c) 6^{11}

d) 6^{23}

58) $x^{m-1} \times \dots = 1, x \neq 0$

a) x^{m-1}

b) x^{-m-1}

c) x^{m+1}

d) x^{-m+1}

59) What is the perimeter of a square with an area of $a \text{ cm}^2$?

a) $a^4 \text{ cm}$

b) $(\sqrt{a})^4 \text{ cm}$

c) $4\sqrt{a} \text{ cm}$

d) $4a \text{ cm}$

60) What is the value of $4^2 + 4^2 + 4^2 + 4^2$?

a) 4^2

b) 4^3

c) 4^8

d) 4^{16}

61) If $2^{x-1} = 1$, what is the value of x ?

a) 0

b) 1

c) -1

d) -2



62) If $\sqrt{6} \times (\sqrt{6})^x = 1$, what is the value of x ?

- a) 0 b) 1 c) -1 d) -2

63) What is the $\frac{1}{5}$ of the number $(\sqrt[3]{5})^6$?

- a) 5 b) 25 c) $\sqrt[3]{5}$ d) $(\sqrt[3]{5})^8$

64) If $2^x = 3$, what is the value of 2^{x+1} ?

- a) 4 b) 5 c) 6 d) 9

65) What is the value of: $\frac{2^{2n+1} \times 5^{2n+1}}{(10)^{2n}}$?

- a) $\frac{1}{10}$ b) 7 c) 10 d) 100

66) What is the value of $3^x + 3^x + 3^x$?

- a) 3^{3x} b) 3^{x+1} c) 9^x d) 9^{3x}

67) What is the value of $(\sqrt{2})^{10} + 2^5$?

- a) 2^6 b) 2^{10} c) 2^{15} d) 2^{50}

68) What is the quarter of 2^{14} ?

- a) 2^{12} b) 2^8 c) 2^{10} d) 4^8

69) If $x = \frac{\sqrt{9}}{\sqrt{3}}$, what is the value of x^{-1} ?

- a) $\frac{\sqrt{3}}{3}$ b) $\frac{\sqrt{9}}{\sqrt{2}}$ c) $\sqrt{3}$ d) 2



Q2 Complete the following :-

1) $\mathbb{R} \cap [2, 5[= \dots\dots\dots$

2) $\mathbb{R}^- \cup \mathbb{R}^+ = \dots\dots\dots$

Q3 Answer the following :-

1) The solution set in $\mathbb{Q}$ of the equation $X^2 - 5 = 2$

2) The solution set in $\mathbb{Q} \setminus$ of the equation $X^3 - 11 = 28$

3) Using the number line represent the two intervals $X = [3, 4]$, $Y =]1, 3]$
then find $X \cup Y$

4) Using the number line represent the two intervals $X = [3, 6]$, $Y =]1, 3]$
then find $X \cap Y$

5) If $A = [-1, 3]$, $B =]-\infty, 3[$, find :

- $A \cup B$
- $A \cap B$
- $A - B$
- $B - A$

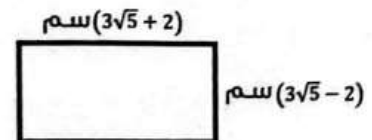
6) Find in the simplest form :-

- a) $(\sqrt{8} - 3)(\sqrt{8} + 3)$
- b) $(\sqrt{5} - 1)^2 + (\sqrt{5} - 2)(\sqrt{5} + 2)$
- c) $(\sqrt{3} - 2)^2$

7) Make the denominator an integer

- a) $\frac{10}{2\sqrt{5}}$
- b) $\frac{10}{5-\sqrt{15}}$

9) Find the area of the opposite rectangle .



10) Find the result in the simplest form :

a) $\sqrt[3]{3} + \sqrt[3]{3} = \dots\dots\dots$

b) $2\sqrt{3} + 5\sqrt{27} - 4\sqrt{48} = \dots\dots\dots$

c) $\sqrt[3]{24} + \sqrt[3]{3} - 2\sqrt[3]{81} = \dots\dots\dots$

d) $2\sqrt[3]{\frac{1}{4}} + \sqrt[3]{16} = \dots\dots\dots$

e) $\frac{(\sqrt{3})^6 \times (\sqrt{3})^4}{(\sqrt{3})^5 \times (\sqrt{3})^3} = \dots\dots\dots$

f) $\frac{(-2xy)^{-3}}{x^{-4} \times y^{-3}} = \dots\dots\dots$

11) If $X = (\sqrt{5} - 2)$, $Y = (\sqrt{5} + 2)$, find

a) $X \times Y$

b) $X + Y$

13) If the area of a square is 144 cm^2 , find its diagonal.

Unit 2**Q1 Choose the correct answer:-**

- 1) what is the greatest common factor between the terms of the polynomial $12x^2 - 8x$
- a) 2 b) 4 c) $2x$ d) $4x$
- 2) $49ab + 14b^2 = 7b(\dots\dots\dots + \dots\dots\dots)$
- a) $7b + 2a$ b) $7a + 2b$ c) $42a + 7b$ d) $14ab$
- 3) $-9x^2 - 18y^2 = -9(\dots\dots\dots + \dots\dots\dots)$
- a) $x^2 + 2y^2$ b) $x^2 - 2y^2$ c) $2x^2 + y^2$ d) $x^2 - 9y^2$
- 4) $33m^2n + 44mn^2 = \dots\dots\dots(3m + 4n)$
- a) $11m^2n^2$ b) $11m + n$ c) $11nm^2$ d) $11mn$
- 6) $6a - 8b = \dots\dots\dots$
- a) $6(a - 2b)$ b) $4(2a - 4b)$
c) $2(3a - 4b)$ d) $14(a - b)$
- 8) $x(a + b) + y(a + b) = \dots\dots\dots$
- a) $(x - y)(a - b)$ b) $(x + y)(a + b)$
c) $(x - y)(a + b)$ d) $(x + y)(a - b)$
- 9) If $x + 2y = 7$, then what is the value of $2x + 4y$?
- a) 14 b) 28 c) 18 d) 56
- 11) If $3x + 3y = 18$, then what is the value of $x + y$?
- a) 54 b) 15 c) 6 d) 2

Q2 Answer the following :-

1) Factorize by taking out the greatest common factor :

a) $4X - 12X^3 + 16X^3$

2) Find the solution set of each of the following in $\mathbb{R}$:-

a) $10 Y^2 - 30 Y = 0$

Answers

Unit 1

Q1 Choose the correct answer:-1) $R = \dots\dots\dots$

a) $Q \cup Q'$

b) $Q \cap Q'$

c) $N \cup Z$

d) $Z \cup Q'$

2) Which of the following numbers is an irrational number ?

a) 0.3

b) $\sqrt{\frac{9}{25}}$

c) $\sqrt{5}$

d) $\sqrt[3]{-125}$

3) If $X \in Z$, $X < \sqrt{29} < X+1$, what is the value of X ?

a) 4

b) 5

c) 6

d) 7

4) Estimating $\sqrt{41}$ to the closest integer is

a) 6

b) 7

c) 36

d) 49

5) Estimating $\sqrt[3]{25}$ to closest integer is

a) 2

b) 3

c) 5

d) 12.5

6) Which of the following numbers is an irrational number that lies between -1 and -2 ?

a) -3

b) $-1\frac{1}{2}$

c) $-\sqrt{3}$

d) $\sqrt{2}$

7) The side length of a square with an area of 6 cm^2 is.....

a) a natural number

b) an integer.

c) a rational number.

d) an irrational number.

8) What is the solution set of the equation : $X^2 + 1 = 0$ in R ?

a) $\{-1\}$

b) $\{1, -1\}$

c) $\{1\}$

d) $\emptyset$



9) If X is a negative real number, which of the following numbers is positive?

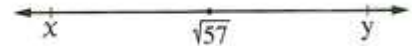
a) X^2

b) X^3

c) $2X$

d) $\frac{x}{2}$

10) If X and Y are two consecutive integers, what is the value of $X+Y$?



a) 11

b) 13

c) 15

d) 17

For more steps
watch

11) $R =$

a) $R^+ \cap R^-$

b) $R^+ \cup R^-$

c) $]-\infty, \infty[$

d) $Q \cap Q'$

12) $R^+ =$

a) $]0, \infty[$

b) $]-\infty, 0[$

c) $[0, \infty[$

d) $]-\infty, 0]$

13) $R^- =$

a) $]0, \infty[$

b) $]-\infty, 0]$

c) $[0, \infty[$

d) $]-\infty, 0]$

14) The set of non-negative real numbers.....

a) $]0, \infty[$

b) $]-\infty, 0[$

c) $[0, \infty[$

d) $]-\infty, 0]$

15) The set of non-positive real numbers is.....

a) $]0, \infty[$

b) $]-\infty, 0[$

c) $[0, \infty[$

d) $]-\infty, 0]$

16) $|-4|$ $[3, \infty[$

a) $\in$

b) $\notin$

c) $\subset$

d) $\not\subset$



17) If $a \in]2, 5[$, which of the following can be the value of a ?

a) 1

b) 2

c) 4

d) 5

18) If $a \notin]-1, 3]$, which of the following can be the value of a ?

a) -1

b) 0

c) 2

d) 3

19) $\sqrt[3]{-125} \dots\dots\dots]-\sqrt{25}, \sqrt{25}]$

a) $\in$ b) $\notin$ c) $\subset$ d) $\not\subset$

20) $\mathbb{Z}^+ \dots\dots\dots]0, \infty[$

a) $\in$ b) $\notin$ c) $\subset$ d) $\not\subset$

21) $[-3, 6] -]6, 8[= \dots\dots\dots$

a) $\emptyset$ b) $[-3, 6]$ c) $[-3, 6[$ d) $] -3, 6[$

22) $[-4, 1] \cap [0, 1] = \dots\dots\dots$

a) $\{1\}$ b) $] -4, 1]$ c) $[0, 1]$ d) $[0, 1[$

23) $] -\infty, 2[\cap [0, \infty [= \dots\dots\dots$

a) $[0, 2]$ b) $[0, 2]$ c) $\mathbb{R}$ d) $\emptyset$

24) What is the interval resulting from $]2, 5[\cup \{2\}$?

a) $]2, 5[$ b) $[2, 5]$ c) $]2, 5]$ d) $[2, 5]$

25) Which of following interval does $-\sqrt{7}$ belong to?

a) $[-2, -1]$ b) $[-3, -2]$ c) $[-4, -3]$ d) $[-7, -6]$

For more steps
watch 



26) $\mathbb{R} - \mathbb{R}^- = \dots\dots\dots$

- a) $\mathbb{R}^+$ b) $]-\infty, 0]$ c) $[0, \infty[$ d) $]-\infty, 0[$

27) What is the sum of all real number in the interval $[-75, 75]$?

- a) -75 b) 75 c) 150 d) 0

28) What is the sum of all real number in the interval $[-75, 75[$?

- a) -75 b) 75 c) 150 d) 0

29) $\{3\} \cap [3, 6] = \dots\dots\dots$

- a) $\emptyset$ b) $\{3\}$ c) $[3, 6]$ d) $\{6\}$

30) $\{8, 9, 10\} -]8, 10[= \dots\dots\dots$

- a) $\emptyset$ b) $\{8, 10\}$ c) $\{9\}$ d) $\mathbb{N}$

31) If $X \in [-3, 4]$, then $X^2 \in \dots\dots\dots$

- a) $[9, 16]$ b) $[0, 9]$ c) $[0, 16]$ d) $[-9, 0]$

32) If $a + \sqrt{5} = 0$, what is the value of a ?

- a) 0 b) $\sqrt{5}$ c) $-\sqrt{5}$ d) $\frac{1}{\sqrt{5}}$

33) If $a \times \sqrt{2} = 1$, what is the value of a ?

- a) 1 b) $\sqrt{2}$ c) $-\sqrt{2}$ d) $\frac{\sqrt{2}}{2}$

34) If $a\sqrt{5} - 4\sqrt{5} = 3\sqrt{5}$, then

- a) $a = -1$ b) $a = 1$ c) $a = 7$ d) $a = 10$

35) If $(2\sqrt{3})^n = 12$, then

- a) $n = 2$ b) $n = 3$ c) $n = 4$ d) $n = 6$



36) If $x = \sqrt{2} + 10$, $y = \sqrt{2} - 10$, what is the value of $(x + y)^2$?

- a) 4 b) 6 c) 8 d) $4\sqrt{2}$

37) If $\sqrt[3]{5} + 3a = 4\sqrt[3]{5}$, then

- a) $a = 1$ b) $a = \sqrt{5}$ c) $a = \sqrt[3]{5}$ d) $a = 5$

38) What is the additive inverse of the number $\frac{7}{\sqrt{7}}$ in its simplest form?

- a) $\frac{\sqrt{7}}{7}$ b) 7 c) $-\sqrt{7}$ d) -7

39) What is the multiplicative inverse of the number $\sqrt{5}$ in its simplest form?

- a) -5 b) $\frac{-1}{5}$ c) $\frac{5}{\sqrt{5}}$ d) $\frac{\sqrt{5}}{5}$

40) What is the multiplicative inverse of the number $\sqrt{3} - 2$?

- a) $2 - \sqrt{3}$ b) $\sqrt{3} + 2$ c) $-\sqrt{3} - 2$ d) $\sqrt{3} - 2$

41) If $\frac{x}{3\sqrt{2}} = \frac{y}{2\sqrt{5}} = 1$, then $x^2 + y^2 =$

- a) 36 b) 38 c) 42 d) 45

For more steps
watch 

42) What is the value of: $\sqrt{18} + \sqrt{32}$?

- a) $\sqrt{50}$ b) $7\sqrt{2}$ c) $7\sqrt{4}$ d) $5\sqrt{4}$

43) What is the multiplicative inverse of the number $\sqrt{50}$?

- a) $\frac{\sqrt{2}}{10}$ b) $\frac{-\sqrt{2}}{10}$ c) $-5\sqrt{2}$ d) $5\sqrt{2}$

44) If $a\sqrt[3]{2} = \sqrt[3]{3} \times \sqrt[3]{10}$, what is the value of a ?

- a) 30 b) $\sqrt[3]{30}$ c) 15 d) $\sqrt[3]{15}$



45) If $2\sqrt{3} \times 4a = 8\sqrt{6}$, what is the value of a ?

a) $\sqrt{2}$

b) $\sqrt{3}$

c) 2

d) $\sqrt{6}$

46) If $\frac{\sqrt{3}}{\sqrt{a}} = \frac{\sqrt{2}}{\sqrt{6}}$, what is the value of a ?

a) $\sqrt{3}$

b) $\sqrt{6}$

c) 3

d) 9

47) If $x + \sqrt{28} = \sqrt{7}$, what is the value of x ?

a) $\sqrt{21}$

b) $-\sqrt{21}$

c) $\sqrt{7}$

d) $-\sqrt{7}$

48) If $x = \frac{\sqrt{6}}{\sqrt{2}}$, what is the value of $\frac{1}{x}$?

a) $\sqrt{3}$

b) $\frac{\sqrt{3}}{2}$

c) $\frac{\sqrt{3}}{3}$

d) $2\sqrt{3}$

49) What is the next number in this pattern? $\sqrt{5}, \sqrt{20}, \sqrt{45}, \sqrt{80}, \dots$

a) $2\sqrt{5}$

b) $\sqrt{100}$

c) $\sqrt{120}$

d) $5\sqrt{5}$

50) $\sqrt[3]{3} \times \sqrt[3]{9} = \sqrt{\dots}$

a) 27

b) 3

c) 9

d) 18

51) What is the result of $5^2 + 5^2$?

a) 10^2

b) 10^4

c) 5^4

d) 50

52) What is the result of $3^5 \times 2^5$?

a) 5^{10}

b) 6^{10}

c) 6^5

d) 6^{25}

53) What is the value of $3x^0$? where $x \neq 0$

a) 0

b) 1

c) 3

d) $3x$

54) What is the result of $\frac{(ab)^3}{b^3}$?

a) a^3

b) $\frac{a}{b}$

c) $\frac{a^3}{b^2}$

d) $\frac{a^2}{b^3}$

For more steps
watch 

55) What is the quarter of the number 4^{20} ?

a) 1^{10}

b) 4^{19}

c) 4^{16}

d) 4^5

56) What is four times the number 2^8 ?

a) 2^{32}

b) 8^8

c) 2^{10}

d) 4^8

57) What is the sixth of the number $2^{12} \times 3^{12}$?

a) 6^2

b) 6^4

c) 6^{12}

d) 6^{23}

58) $x^{m-1} \times \dots = 1, x \neq 0$

a) x^{m-1}

b) x^{-m-1}

c) x^{m+1}

d) x^{-m+1}

59) What is the perimeter of a square with an area of $a \text{ cm}^2$?

a) $a^4 \text{ cm}$

b) $(\sqrt{a})^4 \text{ cm}$

c) $4\sqrt{a} \text{ cm}$

d) $4a \text{ cm}$

60) What is the value of $4^2 + 4^2 + 4^2 + 4^2$?

a) 4^2

b) 4^3

c) 4^8

d) 4^{16}

61) If $2^{x-1} = 1$, what is the value of x ?

a) 0

b) 1

c) -1

d) -2



For more steps
watch 

62) If $\sqrt{6} \times (\sqrt{6})^x = 1$, what is the value of x ?

a) 0

b) 1

c) -1

d) -2

63) What is the $\frac{1}{5}$ of the number $(\sqrt[3]{5})^6$?

a) 5

b) 25

c) $\sqrt[3]{5}$ d) $(\sqrt[3]{5})^8$

64) If $2^x = 3$, what is the value of 2^{x+1} ?

a) 4

b) 5

c) 6

d) 9

65) What is the value of: $\frac{2^{2n+1} \times 5^{2n+1}}{(10)^{2n}}$?

a) $\frac{1}{10}$

b) 7

c) 10

d) 100

66) What is the value of $3^x + 3^x + 3^x$?

a) 3^{3x} b) 3^{x+1} c) 9^x d) 9^{3x}

67) What is the value of $(\sqrt{2})^{10} + 2^5$?

a) 2^6 b) 2^{10} c) 2^{15} d) 2^{50}

68) What is the quarter of 2^{14} ?

a) 2^{12} b) 2^8 c) 2^{10} d) 4^8

69) If $x = \frac{\sqrt{9}}{\sqrt{3}}$, what is the value of x^{-1} ?

a) $\frac{\sqrt{3}}{3}$ b) $\frac{\sqrt{9}}{\sqrt{2}}$ c) $\sqrt{3}$

d) 2



Q2 Complete the following :-

For more steps
watch 

1) $\mathbb{R} \cap [2, 5[= [2, 5[=$

2) $\mathbb{R}^- \cup \mathbb{R}^+ = \mathbb{R} - \{0\}$

Q3 Answer the following :-

1) The solution set in $\mathbb{Q}$ of the equation $X^2 - 5 = 2$

$$X^2 - 5 = 2$$

$$X^2 = 2 + 5 = 7$$

$$X = \pm\sqrt{7}$$

$$\text{S.S} = \emptyset$$

2) The solution set in $\mathbb{Q}^{\setminus}$ of the equation $X^3 - 11 = 28$

$$X^3 - 11 = 28$$

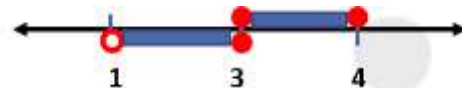
$$X^3 = 28 + 11 = 39$$

$$X = \sqrt[3]{39}$$

$$\text{S.S} = \{\sqrt[3]{39}\}$$

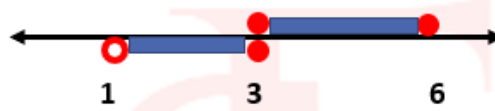
3) Using the number line represent the two intervals $X = [3, 4]$, $Y =]1, 3]$

then find $X \cup Y =]1, 4]$



4) Using the number line represent the two intervals $X = [3, 6]$, $Y =]1, 3]$

then find $X \cap Y = \{3\}$



5) If $A = [-1, 3]$, $B =]-\infty, 3[$, find :

- $A \cup B =]-\infty, 3]$
- $A \cap B = [-1, 3[$
- $A - B = \{3\}$
- $B - A =]-\infty, -1[$

For more steps
watch 

6) Find in the simplest form :-

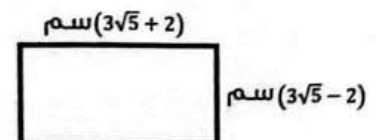
- a) $(\sqrt{8} - 3)(\sqrt{8} + 3) = -1$
- b) $(\sqrt{5} - 1)^2 + (\sqrt{5} - 2)(\sqrt{5} + 2) = 7 - 2\sqrt{5}$
- c) $(\sqrt{3} - 2)^2 = 7 - 4\sqrt{3}$

7) Make the denominator an integer

- a) $\frac{10}{2\sqrt{5}} = \sqrt{5}$
- b) $\frac{10}{5 - \sqrt{15}} = 5 + \sqrt{15}$

9) Find the area of the opposite rectangle .

$$(3\sqrt{5} + 2)(3\sqrt{5} - 2) = 41\text{cm}^2$$



10) Find the result in the simplest form :

a) $\sqrt[3]{3} + \sqrt[3]{3} = 2\sqrt[3]{3}$

b) $2\sqrt{3} + 5\sqrt{27} - 4\sqrt{48} = \sqrt{3}$

c) $\sqrt[3]{24} + \sqrt[3]{3} - 2\sqrt[3]{81} = -3\sqrt[3]{3}$

d) $2\sqrt[3]{\frac{1}{4}} + \sqrt[3]{16} = 3\sqrt[3]{2}$

e) $\frac{(\sqrt{3})^6 \times (\sqrt{3})^4}{(\sqrt{3})^5 \times (\sqrt{3})^3} = 3$

f) $\frac{(-2xy)^{-3}}{x^{-4} \times y^{-3}} = \frac{-x}{8}$

For more steps
watch 

11) If $X = (\sqrt{5} - 2)$, $Y = (\sqrt{5} + 2)$, find

a) $X Y = (\sqrt{5} - 2)(\sqrt{5} + 2) = 1$

b) $X + Y = (\sqrt{5} - 2) + (\sqrt{5} + 2) = 2\sqrt{5}$

12) If the area of a square is 144 cm^2 , find its diagonal.

Diagonal = $\sqrt{2} \text{ cm}$

Unit 2**Q1 Choose the correct answer:-**

1) what is the greatest common factor between the terms of the polynomial $12x^2 - 8x$

a) 2

b) 4

c) $2x$ d) $4x$

2) $49ab + 14b^2 = 7b(\dots\dots\dots + \dots\dots\dots)$

a) $7b + 2a$ b) $7a + 2b$ c) $42a + 7b$ d) $14ab$

3) $-9x^2 - 18y^2 = -9(\dots\dots\dots + \dots\dots\dots)$

a) $x^2 + 2y^2$ b) $x^2 - 2y^2$ c) $2x^2 + y^2$ d) $x^2 - 9y^2$

4) $33m^2n + 44mn^2 = \dots\dots\dots(3m + 4n)$

a) $11m^2n^2$ b) $11m + n$ c) $11nm^2$ d) $11mn$

6) $6a - 8b = \dots\dots\dots$

a) $6(a - 2b)$ b) $4(2a - 4b)$ c) $2(3a - 4b)$ d) $14(a - b)$

8) $x(a + b) + y(a + b) = \dots\dots\dots$

a) $(x - y)(a - b)$ b) $(x + y)(a + b)$ c) $(x - y)(a + b)$ d) $(x + y)(a - b)$

9) If $x + 2y = 7$, then what is the value of $2x + 4y$?

a) 14

b) 28

c) 18

d) 56

11) If $3x + 3y = 18$, then what is the value of $x + y$?

a) 54

b) 15

c) 6

d) 2

Q2 Answer the following :-

1) Factorize by taking out the greatest common factor :

a) $4X - 12X^3 + 16X^3$

. $4X(1 - 3X^2 + 4X^2)$

2) Find the solution set of each of the following in $\mathbb{R}$:-

a) $10Y^2 - 30Y = 0$

. $10Y(Y - 3) = 0$

. $10Y = 0$, $Y = 0$

. *OR* $(Y - 3) = 0$, $Y = 3$

. $S.S = \{0, 3\}$

Model Exam**Q1 Choose the correct answer:-**

1) If $x = \frac{\sqrt{6}}{\sqrt{2}}$, what is the value of $\frac{1}{x}$?

- a) $\sqrt{3}$ b) $\frac{\sqrt{3}}{2}$ c) $\frac{\sqrt{3}}{3}$ d) $2\sqrt{3}$

2) The interval which represent $]1, 2[\cup \{1, 2\}$ is

- a) $[1, 2]$ b) $]1, 2[$ c) $]1, 2]$ d) $[1, 2[$

3) If $\frac{x}{3\sqrt{2}} = \frac{y}{2\sqrt{5}} = 1$, then $x^2 + y^2 = \dots\dots\dots$

- a) 36 b) 38 c) 42 d) 45

4) If $a\sqrt{3} - 3\sqrt{3} = 5\sqrt{3}$

- a) 7 b) 8 c) 9 d) 10

5) $\sqrt[3]{2} + \sqrt[3]{2} = \dots\dots\dots$

- a) $\sqrt[3]{2}$ b) $\sqrt[3]{4}$ c) $\sqrt[3]{8}$ d) $\sqrt[3]{16}$

6) $(\sqrt{5} + \sqrt{2})(\sqrt{5} - \sqrt{2}) = \dots\dots\dots$

- a) 2 b) 3 c) 6 d) 7

7) What is the multiplicative inverse of the number $\sqrt{3} - 2$?

- a) $2 - \sqrt{3}$ b) $\sqrt{3} + 2$ c) $-\sqrt{3} - 2$ d) $\sqrt{3} - 2$

8) If $(X + 2)^0 = 1$, then $X \in \dots\dots$

- a) $\mathbb{R}$ b) $\mathbb{R} - \{-2\}$ c) $\mathbb{R} - \{2\}$ d) $\{-2\}$

9) If $x = \sqrt{2} + 10$, $y = \sqrt{2} - 10$, what is the value of $(x + y)^2$?

- a) 4 b) 8 c) 6 d) $4\sqrt{2}$

Q2 Answer the following :-

1) If $X = (\sqrt{2} - 2)$, $Y = (\sqrt{2} + 2)$, find in the simplest form ;

a) XY

b) $X + Y$

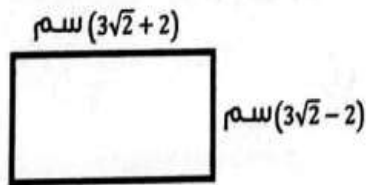
2) Find in the simplest form $\sqrt[3]{128} + \sqrt[3]{16} - 2\sqrt[3]{54}$

3) Find in the simplest form .

a) $(\sqrt{7} - 2)^2 + (\sqrt{7} + 3)(\sqrt{7} - 1)$

b) $\frac{(\sqrt{5})^n \times (\sqrt{3})^{2-n}}{3 \times (\sqrt{15})^{-n}}$

4) Make the denominator in the number $\frac{12}{\sqrt{3}}$ an integer



5) Find the area of the opposite rectangle .

6) Using the number line represent the two intervals $X = [5, 7]$, $Y =]4, 5]$

then find

$X \cup Y$, $X \cap Y$, $X - Y$, $Y - X$

7) Find in $\mathbb{R}$ the solution set of the equation $2X^2 - 3 = 15$

Answers

Model Exam

Q1 Choose the correct answer:-

1) If $x = \frac{\sqrt{6}}{\sqrt{2}}$, what is the value of $\frac{1}{x}$?

a) $\sqrt{3}$

b) $\frac{\sqrt{3}}{2}$

c) $\frac{\sqrt{3}}{3}$

d) $2\sqrt{3}$

2) The interval which represent $]1, 2[\cup \{1, 2\}$ is

a) $[1, 2]$

b) $]1, 2[$

c) $]1, 2]$

d) $[1, 2[$

3) If $\frac{x}{3\sqrt{2}} = \frac{y}{2\sqrt{5}} = 1$, then $x^2 + y^2 = \dots\dots\dots$

a) 36

b) 38

c) 42

d) 45

4) If $a\sqrt{3} - 3\sqrt{3} = 5\sqrt{3}$

a) 7

b) 8

c) 9

d) 10

5) $\sqrt[3]{2} + \sqrt[3]{2} = \dots\dots\dots$

a) $\sqrt[3]{2}$

b) $\sqrt[3]{4}$

c) $\sqrt[3]{8}$

d) $\sqrt[3]{16}$

6) $(\sqrt{5} + \sqrt{2})(\sqrt{5} - \sqrt{2}) = \dots\dots\dots$

a) 2

b) 3

c) 6

d) 7

7) What is the multiplicative inverse of the number $\sqrt{3} - 2$?

a) $2 - \sqrt{3}$

b) $\sqrt{3} + 2$

c) $-\sqrt{3} - 2$

d) $\sqrt{3} - 2$

8) If $(X + 2)^0 = 1$, then $X \in \dots\dots$

a) $\mathbb{R}$

b) $\mathbb{R} - \{-2\}$

c) $\mathbb{R} - \{2\}$

d) $\{-2\}$

9) If $x = \sqrt{2} + 10$, $y = \sqrt{2} - 10$, what is the value of $(x + y)^2$?

a) 4

b) 8

c) 6

d) $4\sqrt{2}$

Q2 Answer the following :-

1) If $X = (\sqrt{2} - 2)$, $Y = (\sqrt{2} + 2)$, find in the simplest form ;

a) $XY = -2$

b) $X + Y = 2\sqrt{2}$

2) Find in the simplest form $\sqrt[3]{128} + \sqrt[3]{16} - 2\sqrt[3]{54}$

$$4\sqrt[3]{2} + 2\sqrt[3]{2} - 6\sqrt[3]{2} = 0$$

3) Find in the simplest form .

a) $(\sqrt{7} - 2)^2 + (\sqrt{7} + 3)(\sqrt{7} - 1) = 15 - 2\sqrt{7}$

b) $\frac{(\sqrt{5})^n \times (\sqrt{3})^{2-n}}{3 \times (\sqrt{15})^{-n}} = \frac{(\sqrt{5})^n \times (\sqrt{3})^{2-n}}{3 \times (\sqrt{3})^{-n} \times (\sqrt{5})^{-n}}$

$$= \frac{1}{3} \times (\sqrt{5})^{n-(-n)} (\sqrt{3})^{2-n-(-n)}$$

$$= \frac{1}{3} \times (\sqrt{5})^{2n} (\sqrt{3})^2$$

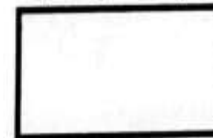
$$= \frac{1}{3} \times (\sqrt{5})^{2n} \times 3 = (\sqrt{5})^{2n}$$

4) Make the denominator in the number $\frac{12}{\sqrt{3}}$ an integer $4\sqrt{3}$

5) Find the area of the opposite rectangle .

$$(3\sqrt{2} + 2)(3\sqrt{2} - 2) = 14 \text{ cm}^2$$

سم $(3\sqrt{2} + 2)$



سم $(3\sqrt{2} - 2)$

6) Using the number line represent the two intervals $X = [5, 7]$, $Y =]4, 5]$, then find

$$X \cup Y =]4, 7]$$

$$X \cap Y = \{5\}$$

$$X - Y =]5, 7]$$

$$Y - X =]4, 5[$$

7) Find in $\mathbb{R}$ the solution set of the equation $2X^2 - 3 = 15$ S.S = $\{-3, 3\}$

حمل الآن

مجاناً وحصرياً

المراجعة رقم (6)

اختبار شهر اكتوبر



1	Which of the following numbers is irrational ?			
	0.3	$\sqrt{\frac{9}{25}}$	$\sqrt{5}$	$\sqrt[3]{-125}$
2	What is the estimate of the number $\sqrt[3]{36}$ to the nearest integer ?			
	3	4	5	6
3	If $x < \sqrt{12} < x + 1$, then $x = \dots\dots\dots$ where x is an integer			
	3.4	3	4	-3
4	The irrational number that lies between 4 and 5 is			
	4.3	$-\sqrt{20}$	$\sqrt[3]{67}$	$\sqrt[3]{1000}$
5	The number $\sqrt{10}$ lies between two consecutive integers these integers are			
	2 and 3	3 and 4	4 and 5	5 and 6
6	$\mathbb{Q} \cup \mathbb{Q}' = \dots\dots\dots$			
	zero	$\mathbb{Z}$	$\mathbb{R}$	$\mathbb{Q}$
7	$\mathbb{R} = \dots\dots\dots$			
	$\mathbb{R}^+ \cap \mathbb{R}^-$	$\mathbb{R}^+ \cap \mathbb{R}^-$	$] -\infty, \infty[$	$\mathbb{Q} \cap \mathbb{Q}'$
8	$\mathbb{R} = \dots\dots\dots$			
	$\mathbb{Q} \cup \mathbb{Q}'$	$\mathbb{Q} \cap \mathbb{Q}'$	$\mathbb{N} \cup \mathbb{Z}$	$\mathbb{Z} \cup \mathbb{Q}'$
9	Estimating $\sqrt[3]{25}$ to the closest integer is			
	2	3	5	12.5
10	The s.s in $\mathbb{R}$ of the equation : $x^2 - 9 = 0$ is			
	{3}	$\emptyset$	{-3}	{3, -3}
11	The s.s in $\mathbb{R}$ of the equation : $x^2 + 25 = 0$ is			
	{-5}	{5, -5}	$\emptyset$	{5}
12	$(2\sqrt[3]{2})^3 = \dots\dots\dots$			
	4	8	16	40

13	If $\sqrt[3]{40} = a\sqrt[3]{5}$, what is the value of a ?			
	8	2	5	40
14	$\sqrt{-9} \dots \mathbb{R}$			
	$\in$	$\notin$	$\subset$	$\subseteq$
15	$\sqrt{15} \in \dots$			
	$\mathbb{Z}$	$\mathbb{N}$	$\mathbb{Q}$	$\mathbb{Q}'$
16	The length of the side of a square with an area of 10 cm^2 is cm			
	5	2.5	$\sqrt{10}$	$\sqrt[3]{10}$
17	$-3 \dots]-4, 1]$			
	$\in$	$\notin$	$\subset$	$\subseteq$
18	The set of non negative real numbers is			
	$]0, \infty[$	$] -\infty, 0[$	$[0, \infty[$	$] -\infty, 0]$
19	The set of non positive real numbers is			
	$]0, \infty[$	$[0, \infty[$	$] -\infty, 0[$	$] -\infty, 0]$
20	If $a \notin]-1, 3]$, which of the following could be equal to a ?			
	-1	0	2	3
21	$\mathbb{N} \dots]0, \infty[$			
	$\in$	$\notin$	$\subset$	$\subseteq$
22	Which of the following intervals does the number $-\sqrt{7}$ belong to?			
	$[-2, -1]$	$[-3, -2]$	$[-4, -3]$	$[-7, -6]$
23	$[4, 9] \cap [7, 10] = \dots$			
	$[4, 10]$	$[9, 10]$	$[4, 7]$	$[7, 9]$
24	$]0, 5[-]3, 7[= \dots$			
	$]0, 3]$	$]5, 7[$	$]3, 5[$	$]0, 3[$
25	$[1, 3] - \{1, 3\} = \dots$			
	$]1, 3[$	$[1, 3[$	$] -3, -1[$	$] -1, 3[$

26	$\{3, 4, 5\} -]3, 5[= \dots\dots\dots$		
	$\emptyset$	$\{3, 5\}$	$\{4\}$
27	$[-2, 5] -]-2, 5[= \dots\dots\dots$		
	$[-2, 5]$	$\{-2, 5\}$	$]-2, 5[$
28	<i>The sum of all real numbers in the interval $[-75, 75]$ is $\dots\dots\dots$</i>		
	-75	75	150
29	<i>If $x \in [-3, 4]$, then $x^2 \in \dots\dots\dots$</i>		
	$[9, 16]$	$[0, 9]$	$[0, 16]$
30	<i>If $X =]-\infty, 3[$, then $X' = \dots\dots\dots$</i>		
	$]3, \infty[$	$[0, 3[$	$]3, \infty[$
31	<i>Which interval represents $\mathbb{R}^- \cap]-2, 3]$?</i>		
	$]-2, 0[$	$]-2, 0]$	$]-2, 1]$
32	$\mathbb{R}^+ \cap [-2, 5[= \dots\dots\dots$		
	$[0, 5]$	$\mathbb{R}$	$]0, 5[$
33	$]2, 5[\cup \{2, 5\} = \dots\dots\dots$		
	$\{2, 5\}$	$[2, 5]$	$]2, 5]$
34	$]-2, 5] \cup \{-2, 3\} = \dots\dots\dots$		
	$[-2, 3]$	$[-2, 5]$	$]-2, 3[$
35	<i>The multiplicative inverse of $\sqrt{32}$ in the simplest form is $\dots\dots\dots$</i>		
	$\frac{8}{\sqrt{2}}$	$\frac{\sqrt{2}}{8}$	$4\sqrt{2}$
36	<i>The multiplicative inverse of the number $\frac{2\sqrt{3}}{5}$ is $\dots\dots\dots$</i>		
	$\frac{5}{\sqrt{3}}$	$\frac{6}{5\sqrt{3}}$	$\frac{5\sqrt{3}}{6}$
37	<i>What is the multiplicative inverse of the number $\sqrt{3} - 2$?</i>		
	$2 - \sqrt{3}$	$\sqrt{3} + 2$	$-\sqrt{3} - 2$

38	The additive inverse of the number $3\sqrt{7} - 4$ is		
	$-3\sqrt{7} - 4$	$4 - 3\sqrt{7}$	$3\sqrt{7} + 4$
39	The area of the rectangle with dimensions $(\sqrt{7} + 1)$ cm and $(\sqrt{7} - 1)$ cm is cm^2		
	8	7	$2\sqrt{7}$
40	The next number in the pattern : $\sqrt{3}, \sqrt{12}, \sqrt{27}, \sqrt{48}, \dots$ is		
	$\sqrt{72}$	$\sqrt{75}$	$\sqrt{64}$
41	$3^3\sqrt{24} = \dots$		
	$6\sqrt{6}$	$6^3\sqrt{4}$	$6^3\sqrt{3}$
42	If $\sqrt[3]{5} + 3a = 4\sqrt[3]{5}$, then $a = \dots$		
	1	$\sqrt{5}$	$\sqrt[3]{5}$
43	If $\sqrt{125} \times \sqrt{8} = 10\sqrt{a}$, then $a = \dots$		
	40	20	10
44	If $x + \sqrt{28} = \sqrt{7}$, what is the value of x ?		
	$\sqrt{21}$	$-\sqrt{21}$	$-\sqrt{7}$
45	If $a \times \sqrt{2} = 1$, what is the value of a ?		
	1	$\sqrt{2}$	$\frac{\sqrt{2}}{2}$
46	If $a\sqrt{5} - 4\sqrt{5} = 3\sqrt{5}$, then $a = \dots$		
	-1	1	10
47	$\sqrt[3]{5} \times \sqrt[3]{25} = \dots$		
	$\sqrt[3]{30}$	5	$5^3\sqrt{5}$
48	If $2\sqrt{3} \times 4a = 8\sqrt{6}$, then $a = \dots$		
	$\sqrt{2}$	$\sqrt{3}$	$\sqrt{6}$
49	$\sqrt[3]{3} \times \sqrt[3]{9} = \sqrt{\dots}$		
	27	3	18

50	If $\frac{\sqrt{3}}{\sqrt{a}} = \frac{\sqrt{2}}{\sqrt{6}}$, then the value of $a = \dots\dots\dots$		
	$\sqrt{3}$	$\sqrt{6}$	3
51	If $x = \frac{\sqrt{6}}{\sqrt{2}}$, then $\frac{1}{x} = \dots\dots\dots$		
	$\sqrt{3}$	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{3}}{3}$
52	$4^2 + 4^2 + 4^2 + 4^2 = \dots\dots\dots$		
	4^2	4^3	4^8
53	$3^x + 3^x + 3^x = \dots\dots\dots$		
	3^{3x}	3^{x+1}	9^x
54	Half of the number 2^{10} is $\dots\dots\dots$		
	2^5	2^{10}	2^9
55	The quarter of the number 4^{20} is $\dots\dots\dots$		
	1^{10}	4^{19}	4^{16}
56	What is the quarter of 2^{14} ?		
	2^{12}	2^8	2^{10}
57	What is the $\frac{1}{5}$ of the number $(\sqrt[3]{5})^6$?		
	5	25	$\sqrt[3]{5}$
58	What is four times the number 2^8 ?		
	2^{32}	8^8	2^{10}
59	What is the result of $3^5 \times 2^5$?		
	5^{10}	6^{10}	6^5
60	What is the sixth of the number $2^{12} \times 3^{12}$?		
	6^2	6^4	6^{11}
61	If $2^{x-1} = 1$, then $x = \dots\dots\dots$		
	0	1	-1

62	If $\sqrt{6} \times (\sqrt{6})^x = 1$, then $x = \dots\dots\dots$		
	0	1	-1
			-2
63	If $2^x = 3$, what is the value of 2^{x+1} ?		
	4	5	6
			9
64	if $6^x = 7$, then $6^{x+1} = \dots\dots\dots$		
	8	13	36
			42
65	If $2^x = 7$, $2^y = 5$, then $2^{x+y} = \dots\dots\dots$		
	7	12	5
			35
66	the value of $2^5 + (\sqrt{2})^{10} = \dots\dots\dots$		
	2^6	2^{10}	$(\sqrt{2})^{15}$
			$(\sqrt{2})^{20}$
67	if $(x - 5)^{\text{zero}} = 1$, then $x \in \dots\dots\dots$		
	$\mathbb{R} - \{5\}$	$\mathbb{R} - \{-5\}$	$\{5\}$
			$\mathbb{R}$
68	$(5a)^0 = \dots\dots\dots, a \neq 0$		
	5	a	$5a$
			1
69	$3x^{\text{zero}} = \dots\dots\dots, x \neq \text{zero}$		
	zero	1	3
			$3x$
70	What is the result of $\left(\frac{\sqrt{5}}{10}\right)^{-1}$?		
	$2\sqrt{5}$	$5\sqrt{2}$	$\frac{5}{\sqrt{10}}$
			2
71	What is the gamal perimeter of a square with an area of $a \text{ cm}^2$?		
	$a^4 \text{ cm}$	$(\sqrt{a})^4 \text{ cm}$	$4\sqrt{a} \text{ cm}$
			$4a \text{ cm}$
72	$\sqrt[3]{2} + \sqrt[3]{2} = \dots\dots\dots$		
	$\sqrt[3]{2}$	$\sqrt[3]{4}$	$\sqrt[3]{8}$
			$\sqrt[3]{16}$
73	$2\sqrt{x} \times 3\sqrt{x} = \dots\dots\dots$		
	$6x^2$	$6x$	$5x^2$
			$5x$
74	the value of $(\sqrt{x})^{16} = x \dots\dots\dots$		$[-2, 5] \cup]-2, 5[= \dots\dots\dots (6)$

1

If $a = \sqrt{3} + 2$, $b = \frac{1}{\sqrt{3}+2}$, find in the simplest form : $\frac{(a-b)^2}{ab}$

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.....

.....

2

If $x = \sqrt{5} - \sqrt{3}$, $y = \frac{2}{\sqrt{5}-\sqrt{3}}$, What is the value of: $x^2 + y^2$?

.....

.....

.....

3

If $x = \sqrt{6} + \sqrt{2}$, $y = \frac{4}{x}$, find the value of: $(x+y)^2$

.....

.....

.....

4

If $a = \sqrt[3]{5} + \sqrt[3]{3}$, $b = \sqrt[3]{5} - \sqrt[3]{3}$, find the value of: $\left(\frac{a+b}{a-b}\right)^3$

.....

.....

.....

5

If $A = [-2, 3]$, $B =]0, 5[$, using the number line find :

(1) $A \cup B$ (2) $A \cap B$ (3) $A - B$ (4) $B - A$ (5) A'

.....

.....

.....

.....

$$x^{m-1} \times \dots = 1, x \neq 0$$

$$(x^{m-1}, x^{-m-1}, x^{m+1}, x^{-m+1})$$

6 If $X =]-\infty, 4]$, $Y =]1, 7]$, using the number line find :

(1) $X \cup Y$ (2) $X \cap Y$ (3) $Y - X$ (4) X^c (5) Y^c

7 If $X =]-\infty, 3]$, $Y = [-4, \infty[$ using the number line find :

(1) $X \cap Y$ (2) $X \cup Y$ (3) $X - Y$ (4) $Y - X$ (5) Y^c

8 Find in the simplest form : $\sqrt[3]{54} + 4\sqrt[3]{\frac{1}{4}} - \sqrt[3]{2}$

9 Simplify : $\sqrt{50} + 2\sqrt{18} - \sqrt{32} - 8\sqrt{\frac{1}{2}}$

10 Simplify : $\frac{7}{3}\sqrt{18} + \sqrt[3]{54} - 7\sqrt{2} + \sqrt[3]{16}$

11	<i>Simplify : $\frac{\sqrt{72} \times \sqrt{75}}{3\sqrt{6}}$</i>
12	<i>If $x = \sqrt{7} + \sqrt{5}$, $y = \sqrt{7} - \sqrt{5}$, find in the simplest form :</i> <i>(1) $x^2 - y^2$</i> <i>(2) $\frac{x+y}{xy-1}$</i>
13	<i>The dimensions of a rectangle are $(3\sqrt{3} + 4)$cm and $(3\sqrt{3} - 4)$cm , find its perimeter and area</i>
14	<i>A square with a side length $5\sqrt{2}$ cm , find its area</i>
15	<i>Find in $\mathbb{R}$ the S.S of :</i> <i>➤ $8x^3 + 7 = 8$</i> <i>➤ $2x^2 - 1 = 31$</i>

16

Simplify : $\frac{(\sqrt{7})^{-4} \times (\sqrt{7})^{-3}}{(\sqrt{7})^{-9}}$

.....

.....

17

Simplify : $\frac{x^2 \times x^{-3}}{x^{-4} \times x}$

.....

.....

18

Simplify to its simplest form : $\frac{(\sqrt{5})^{-3} \times (\sqrt{2})^{-4}}{(\sqrt{5})^{-1} \times (\sqrt{2})^{-5}}$

.....

.....

19

Simplify to its simplest form : $\frac{16 x^4 y^{-2} \times 7 x^4 y^5}{28 x^2 y^{-3}}$

.....

.....

20

Simplify to its simplest form : $\frac{(10)^{2n} \times 0.001}{(10)^{-n+1} \times 100}$, then find the value of the result when $n = 2$

.....

.....

.....

.....

21

Simplify to the simplest form : $\frac{4^n \times 6^{2n}}{2^{4n} \times 3^{2n}}$

.....

.....

.....

22

Simplify to the simplest form : $\frac{(\sqrt{6})^{n+2} \times (\sqrt{3})^n}{4 \times (\sqrt{2})^{n-2}}$

.....

.....

.....

23

Simplify to the simplest form : $\frac{(\sqrt{5})^n \times (\sqrt{3})^{2-n}}{3 \times (\sqrt{15})^{-n}}$, **then find the numerical value of the result when $n = -2$**

.....

.....

.....

.....

24

If $3^x = 4$, find the value of each of :

(1) 3^{x+1}

(2) 3^{x-1}

(3) $3^{x+2} + 3^{x+3}$

.....

.....

.....

25

Simplify to the simplest form : $\frac{2^{2n+1} \times 3^{2n+1}}{6^{2n}}$

.....

.....

26

Simplify to the simplest form $\frac{(\sqrt[3]{16})^2 \times (2\sqrt[3]{2})^5}{4\sqrt[3]{2} \times (\sqrt[3]{2})^5}$

.....

.....

1	What is the greatest common factor of the polynomial $12x^2 - 8x$?			
	2	4	$2x$	$4x$
2	The greatest common factor in the polynomial $14x^3y - 7xy^2 - 63xy$ is			
	$7x$	$7y$	$7xy$	$7x^2y^2$
3	$27a^3 + 18 = \dots\dots\dots (3a^3 + 2)$			
	$9a$	18	$3a$	9
4	$49ab + 14b^2 = 7b(\dots\dots\dots)$			
	$7b + 2a$	$7a + 2b$	$42a + 7b$	$14ab$
5	$6a - 8b = \dots\dots\dots$			
	$6(a - 2b)$	$4(2a - 4b)$	$2(3a - 4b)$	$14(a - b)$
6	$x^2y - xy^2 = \dots\dots\dots$			
	$xy(x - y)$	$x^2y(1 - y)$	$xy^2(x - 1)$	$xy(y - x)$
7	$-15a^2b^2 + 9ab^3 = \dots\dots\dots$			
	$3(a^2b^2 + ab^3)$	$-3ab^2(5a - 3b)$	$3a^2b(5a - 3b)$	$5ab(3a - 9b)$
8	$3a(2x + y) - 5b(2x + y) = \dots\dots\dots$			
	$(2x + y)(3a - 5b)$	$(2x - y)(3a + 5b)$	$(2x - y)(3a + b)$	$(3a + b)(2x + 5y)$
9	If $x + 2y = 7$, what is the gamal El sakka of $2x + 4y$?			
	14	18	28	56
10	If $5xy + 5ab = 30$, then $xy + ab = \dots\dots\dots$			
	5	6	10	15
11	If $3x - 3y = 27$, what is the value of $y - x$?			
	24	9	-9	3
12	If $x + y = 10$, $a - b = 7$, then $x(a - b) - y(b - a) = \dots\dots\dots$			
	3	17	51	70
13	If $7c - 14d = 21$, then the value of $2c - 4d = \dots\dots\dots$			
	6	-6	28	3 (12)

14	$x^2 + x - 20 = \dots\dots\dots$		
	$(x - 4)(x + 5)$	$(x + 4)(x + 5)$	$(x - 4)(x - 5)$
15	<i>The S.S of the equation : $(x - 3)(x + 5) = 0$ in $\mathbb{R}$ is</i>		
	$\{3, 5\}$	$\{3, -5\}$	$\{-3, 5\}$
16	<i>If $(x + 3)$ is one of factors of $(x^2 - x - 12)$, then the other factor is</i>		
	$x + 2$	$x - 2$	$x + 4$
17	<i>If $x^2 + ax + 15 = (x + 3)(x + b)$, what the value of ab ?</i>		
	5	8	13
18	<i>If $x^2 - 11x + 28 = (x - a)(x - b)$, then $a + b = \dots\dots\dots$</i>		
	-16	-11	11
19	<i>If $x^2 - kx + 18$ is factorizable, then k can be equal to</i>		
	10	12	-12
20	<i>If $x^2 + bx - 14$ is factorizable, then b can be equal to</i>		
	-15	15	-5
21	<i>If $x^2 + ax + 2$ is factorizable, then a can be equal to</i>		
	1	2	3
22	<i>If $x^2 + 7x + a$ is factorizable, then a can be equal to</i>		
	8	10	18
23	<i>If $(x - 5)$ is one of the factors of the trinomial $(2x^2 - 7x - 15)$, what is the other factor ?</i>		
	$x + 3$	$2x - 3$	$2x + 3$
24	<i>If $3x - 2y = 6$, $2x + 3y = 5$, then the numerical value gamal El sakka of $(6x^2 + 5xy - 6y^2)$?</i>		
	10	11	12
25	<i>The solution set of $x^2 + 5x = 0$ in $\mathbb{R}$ is</i>		
	$\emptyset$	$\{0, 25\}$	$\{0, -25\}$

1	Factorize the following polynomial		
	a) $15x^3 + 5x^5$		
	b) $9x^2 + 6xy$		
	c) $8m^3 - 12m^2n + 20mn^2$		
	d) $(x + 4)^2 + 3(x + 4)$		
	e) $x^2 + 5x + 4$		
	f) $x^2 - 11x + 24$		
	g) $x^2 + x - 42$		
	h) $x^2 - 3x - 28$		
	i) $14x - 32 + x^2$		
	j) $x^2 - 5xy + 6y^2$		
	k) $4x^2 - 8x - 60$		
	l) $-x^2 - 13x - 36$		
	m) $3x^2 + 14x + 15$		
	n) $2x^2 - 7x + 6$		
	o) $6x^2 + 7x + 2$		
2	Using the greatest common factor to find the numerical value of :		
	a) $25 \times 11 + 25 \times 18 - 25 \times 9$		
	b) $6 \times \frac{5}{7} + 2 \times \frac{5}{7} - \frac{5}{7}$		
	c) $14^2 + 14 \times 4 - 14 \times 8$		
	d) $45 \times 55 + 45 \times 46 - 45$		
3	Find in $\mathbb{R}$ the solution set of the following equations :		
	a) $5y^2 - 10y = 0$	b) $9k^2 + 18k = 0$	c) $x^2 = 3x$
			
			
			
			

4

Find in $\mathbb{R}$ the solution set of the following equations :

a) $x^2 - 8x + 15 = 0$

b) $x^2 - 21 = 4x$

c) $x^2 - 3x = 10$

d) $2x^3 - 1 = 15$

e) $x^2 - 3 = 2$

f) $3x^2 + 11x - 20 = 0$

5

If $(2a + b) = 6$, $(3a + b) = 8$, find the numerical value of :

$3a(2a + b) + b(2a + b)$

(1) Put in the empty box a suitable symbol from the two symbols $\in$ or $\notin$:

☐ $\sqrt{-2}$ $\mathbb{R}$

☐ $\sqrt{5}$ $\mathbb{Z}$

☐ $0.\bar{5}$ $\mathbb{Q}$

☐ $\sqrt[3]{8}$ $\mathbb{R}$

(2) Find in $\mathbb{R}$ the solution set of the following equations:

1) $2x^2 - 1 = 49$

2) $x^2 - 5 = 2$

3) $3x^3 + 7 = 31$

4) $x^3 - 11 = 28$

Group (A)

First: Choose the correct answer from the given answers:

1) Which of the following numbers is an irrational number

- (a) $0.\bar{5}$ (b) $\sqrt{7}$ (c) $\sqrt{\frac{9}{25}}$ (d) $\sqrt[3]{8}$

2) The interval that expresses $]2,5[\cup \{2,5\}$ is

- (a) $[2,5[$ (b) $]2,5]$ (c) $]2,5[$ (d) $[2,5]$

Second: Answer the following:

3) Using the number line, consider the intervals $X = [3,4]$ and $Y =]1,3]$, then find $X \cup Y$

4) Using the number line, consider the intervals $X = [3,6]$ and $Y =]1,3]$, then find $X \cap Y$

5) Find in $\mathbb{R}$ the solution set of the following equation : $x^2 - 8 = 3$

Group (A)

First: Choose the correct answer from the given answers:

1) If $\frac{x}{3\sqrt{2}} = \frac{y}{2\sqrt{5}} = 1$, then the value of $x^2 + y^2 = \dots\dots\dots$

- (a) 36 (b) 38 (c) 42 (d) 45

2) If $a\sqrt{3} - 3\sqrt{3} = 5\sqrt{3}$ then the value of $a = \dots\dots\dots$

- (a) 7 (b) 8 (c) 9 (d) 10

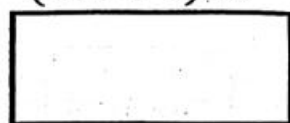
Second: Answer the following:

3) find in the simplest form : $(\sqrt{5} - 2)^2 + (\sqrt{5} + 3)(\sqrt{5} - 2)$

4) Make the denominator of the number $\frac{6}{\sqrt{3}}$ an integer.

5) Find the area of the opposite rectangle:

$(3\sqrt{5} + 2)cm$



$(3\sqrt{5} - 2)cm$

Find in the simplest form: $\sqrt{108} - \sqrt{48} + 2\sqrt{27} + \sqrt{75}$

Find in the simplest form: $\sqrt[3]{24} + \sqrt[3]{81} - 5\sqrt[3]{3}$

If the perimeter of a rectangle is $\sqrt{300}$ meters and its length is $\sqrt{27}$ meters, find its width.

A square has an area of 144 square meters. Find the length of its diagonal.

Group (A)**First: Choose the correct answer from the given answers:**

- 1) $\sqrt[3]{2} + \sqrt[3]{2} = \dots\dots\dots$
 (a) $\sqrt[3]{2}$ (b) $\sqrt[3]{4}$ (c) $\sqrt[3]{8}$ (d) $\sqrt[3]{16}$
- 2) $(\sqrt{5} - \sqrt{2})(\sqrt{5} + \sqrt{2}) = \dots\dots\dots$
 (a) 2 (b) 3 (c) 6 (d) 7

Answer the following:

- 3) If $x = (\sqrt{2} - 2)$ & $y = (\sqrt{2} + 2)$ the find in the simplest form:
 a) xy b) $x + y$
- 4) Find in the simplest form $\sqrt[3]{-16} - \sqrt{28} + \sqrt[3]{54} - \frac{14}{\sqrt{7}}$
- 5) Find in the simplest form $\frac{(\sqrt{3})^6 \times (\sqrt{3})^4}{(\sqrt{3})^5 \times (\sqrt{3})^3}$

Group (A)**First: Choose the correct answer from the given answers:**

- 1) The greatest common factor of $12x^3 + 6x^2$ is
 (a) 6 (b) $6x^2$ (c) x^2 (d) $3x^2$
- 2) $5x^2 + 15xy = 5x(\dots\dots\dots)$
 (a) $x + y$ (b) $3y - x$ (c) $x + 3y$ (d) $20x^3y$

Second : Answer the following questions :

- 3) Factorise the following polynomials by taking out the greatest common factor:
 a) $6x^2 - 2x^3 + 6x^4$ b) $x(x + 5) - 3(x + 5)$
- 4) Find in R the solution set of the following equations:
 a) $5y^2 - 25y = 0$ b) $3x^2 + 18x = 0$

End of the first month exercises**First: Choose the correct answer from the given answers:**

- 1) Which of the following numbers is not a real number?
 (a) $\frac{22}{7}$ (b) $\sqrt{25}$ (c) $\sqrt{-25}$ (d) 25
- 2) If: $x < \sqrt{51} < x + 1$, $x \in \mathbb{Z}$ then the value of $2x$ is equal to.....
 (a) 6 (b) 7 (c) 8 (d) 14
- 3) If $a\sqrt{3} + 3\sqrt{3} = 9\sqrt{3}$ then the value of $a = \dots\dots\dots$
 (a) 7 (b) 6 (c) 9 (d) 10
- 4) $\left(\frac{\sqrt{3}}{\sqrt[3]{3}}\right)^6 = \dots\dots\dots$
 (a) $\sqrt{3}$ (b) $\sqrt[3]{3}$ (c) 3 (d) 9
- 5) The interval that expresses $]1, 4[\cup \{1\}$ is
 (a) $[1, 4]$ (b) $]1, 4[$ (c) $]1, 4]$ (d) $[1, 4[$
- 6) $6x^2 + 18xy = 6x(\dots\dots\dots)$
 (a) $x + y$ (b) $3y - x$ (c) $x + 3y$ (d) $20x^3y$

7) $N \cap [1, 4] = \dots\dots\dots$

- (a) $[1, 4]$ (b) $\{1, 2, 3, 4\}$ (c) $\{2, 3\}$ (d) $\{1\}$

8) if $\frac{x}{\sqrt{2}} = \frac{y}{\sqrt{5}} = 1$, the value of $x^2 + y^2 = \dots\dots\dots$

- (a) 7 (b) 10 (c) 12 (d) 14

9) The solution set of $x^2 + 25x = 0$ in $\mathbb{R}$ is $\dots\dots\dots$

- (a) $\emptyset$ (b) $\{0, 25\}$ (c) $\{0, -25\}$ (d) $\{0\}$

Answer the following questions :

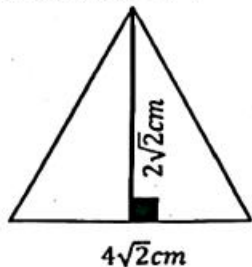
1) Find in $\mathbb{R}$ the solution set of the following equation: $x^3 + 1 = 730$

2) Find in the simplest form : $(\sqrt{3} - 1)^2 + (\sqrt{3} + 1)(\sqrt{3} - 1)$

3) Find in the simplest form : $2\sqrt{32} + \sqrt{18} + \sqrt{50}$

4) Using the number line, consider the intervals $X = [1, 3]$ and $Y =]0, 2]$, then find $X \cup Y$

5) In the opposite figure, find the area of triangle



6) If $a = (\sqrt{7} - \sqrt{5})$, $b = \frac{2}{a}$ then find in the simplest form

- 1) ab 2) $a - b$

7) Using the number line, consider the intervals $X = [3, 6]$ and $Y =]1, 5]$, then find $X \cap Y$

8) Find the value of x $\sqrt[3]{10} = \sqrt[3]{80} - \sqrt[3]{270}$

9) If $x = 2\sqrt{2}$, $y = 3\sqrt[3]{3}$, then find the value of $(y^3 - x^4)$

.....

10) Find the value of each of the following by extracting the greatest common factor:

(a) $25 \times 11 + 25 \times 18 - 25 \times 9$

(b) $14^2 + 14 \times 4 - 14 \times 8$

(c) $45 \times 55 + 45 \times 46 - 45$

11) If $X =]-\infty, 10]$, then find the complement of X

12) Find in the simplest form $\frac{\sqrt{98} + \sqrt{18}}{\sqrt{50}}$

13) If $x = \sqrt[3]{5} + \sqrt[3]{3}$, $y = \sqrt[3]{5} - \sqrt[3]{3}$, then find in the simplest form each of the following :

- (a) $(x + y)^3$ (b) xy (c) $x - y$

.....

- 14) Which is greater: the length of the side of a square with a surface area of 25 cm^2 or the length of the side of a cube with a volume of 216 cm^3 ?
- 15) Factorise the following polynomials by taking out the greatest common factor:

$$(x - 5)^2 - 2(x - 5)$$
- 16) Find in the simplest form $\frac{(\sqrt{3})^n \times (\sqrt{2})^{n+2}}{(\sqrt{6})^n}$
- 17) If $x = \sqrt{2}$, $y = 2$ then find in the simplest form $x^{-10} y^{10}$
- 18) Find in $\mathbb{R}$ the solution set of the following equation: $x^2 = 4x$
- 19) Express the following situation using an inequality, then write it as an interval and represent it on a number line: You must be between 20 and 40 years of age to be eligible for a job.
- 20) Make the denominator of the number $\frac{4}{\sqrt{7} + \sqrt{3}}$ an integer.
- 21) If $3^x = 5$, then find the numerical value of the following:
 (a) 3^{x+1} (b) 3^{x-1} (c) $3^{x+2} + 3^{x+3}$

كيفية طباعة صفحات معينة من ملف معين مثلا ازاي نطبع الصفحات من صفحة 4 الى صفحة 9

